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COMPUTERWORLD

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Netscape takes off the gloves

By Kim S. Nash
NEW YORK

Just when some pundits had declared Microsoft Corp.'s Internet strategy of melding Web features into Windows extremely tough to beat, Netscape struck back.

At its Internet Developers' Conference here last week, Netscape Communications Corp. detailed its 1997 product plan. The goal is to wallop its rival with electronic mail, groupware and support of Microsoft products. Even ActiveX support is on Netscape's agenda.

But time is of the essence, much as it has been in the vendors' browser battle during the past year, users and analysts said.

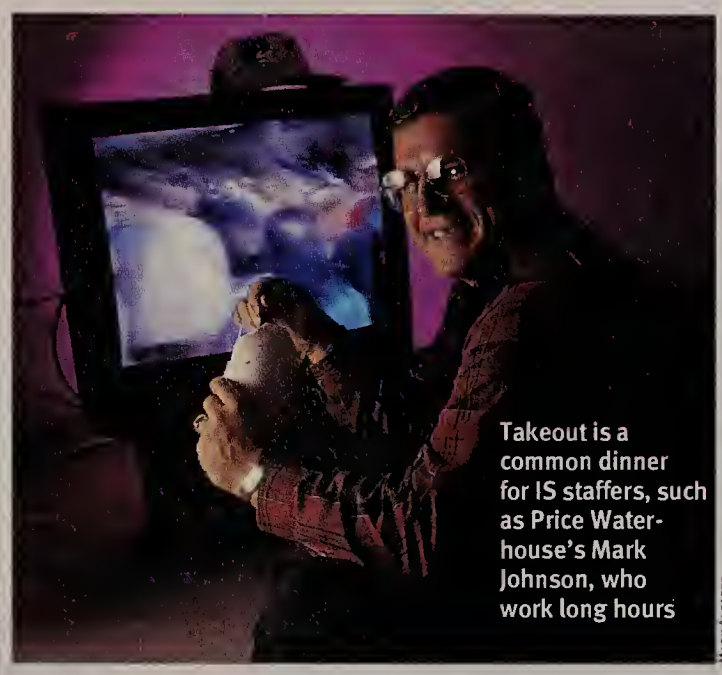
Netscape promises to ship a slew of messaging and collaboration products in the first quarter next year, with beta testing to start next month. Meanwhile, Microsoft's Internet Explorer 4.0 browser, which will be integrated with the Windows

Netscape, *page 135*



STEVEN BORNS

US West's Barbara Bauer: *Melding browsers and mail 'will save us millions'*



MARK ALCAREZ

Takeout is a common dinner for IS staffers, such as Price Waterhouse's Mark Johnson, who work long hours

Huge IS workload frazzles families

By Julia King and Thomas Hoffman

Every Monday morning, Mark Johnson leaves his wife and three children to catch a 6:30 flight to Boston, where he has managed an SAP AG software implementation project for the past 21 months.

By Friday, the Price Waterhouse consultant will log between 60 and 70 hours on the job before hopping on a return flight and heading to his home outside Philadelphia.

"During the week, my focus is just work. I usually pick up some take-out food, sit in my apartment, call my wife and kids, go to sleep, then get up the next day and do it all over again," Johnson said.

But Johnson's weekends are reserved for his family. "I don't usually work at home. I try to avoid it at all costs," he said.

Johnson's story is far from unique. Tens of thousands of information systems professionals are caught up in a grueling life-juggling act ev-

IS workload, *page 14*

Modems offer 56K speedway to 'net

By Kim Girard

Internet and remote access users soon will get a turbo-boost with modems that offer twice the speed of current models.

U.S. Robotics Corp., Lucent Technologies, Inc., Motorola, Inc. and Rockwell Semiconductor Systems have unveiled plans to enter the 56K bit/sec. modem fray.

With the new tech-

Modems, *page 14*

Newspaper

Tandem to run on NT

By Jaikumar Vijayan

Tandem Computers, Inc. soon will join the growing list of proprietary vendors scrambling aboard the Wintel bandwagon.

But it's bringing along some high-end data center technology.

The Cupertino, Calif.-based vendor plans an Oct. 30 launch of symmetrical multiprocessor Windows NT servers, *Computerworld* has learned. The systems feature scalable clustering technology and software.

For Tandem, the announcement marks a radical departure from its roost at the highest end of the fault-tolerant enterprise server market.

And that's good news for organizations that need data center-like systems reliability and availability to deploy critical applications on Windows NT.

"It definitely is going to take some effort on Tandem's part to make it work, but if they do, there are some very clear advantages Tandem brings to this space," said David Dassie, an assistant vice president at First Chicago NBD, a bank in Chicago.

Tandem's NT hardware won't be very different from similar offers from other vendors, said sources

Tandem, *page 16*

Tandem's Windows NT lineup

Models	Tandem S100, S1000 and S1000RM (rack-mount)
Processors	From two to four 200-MHz Pentium Pros
Cache	Up to 512K bytes of Level 2
Memory	Up to 1G byte of Error Checking and Correcting
Clustering	Cluster Availability Solution application recovery software (optional)

ARE SOFTWARE TRAINING CLASSES FOR THE BIRDS?



Gary Miller, training coordinator, Minnesota Department of Natural Resources

STEVE WOIT

YOUR USERS THINK SO.

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Up Front

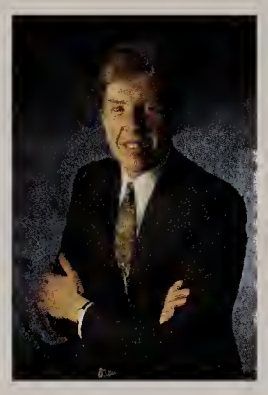
Sun's gamble

This column turned out a lot different than it started.

I set out this week to blast Sun Microsystems for its steadfast refusal to sell Windows NT on its line of workstations and servers.

Sun, I reasoned, was setting itself up to be the OS/2 of the latter 1990s. It was letting ego get in the way of customer demands, backing itself into a technology corner and failing to listen to the market.

Then I had a talk with Scott McNealy. Sun's CEO is one helluva salesman, and even with my best skeptic's hat on, I had to admit there's rational business logic behind Sun's position.



In McNealy's view, giving customers a choice is the job of the dealer or reseller, not the systems maker.

And McNealy claims Sun actually has encouraged its resellers to port NT to Sun's SPARC platforms. But none of them wants to do it.

It seems most server software that runs on NT already runs on Sun's Solaris operating system, where the margins are better for both Sun and its resellers.

And on the World Wide Web, where the bulk of new development activity is going on, Sun is pretty strong.

What's more important for customers, McNealy argues, is that having Sun as an alternative to NT keeps Microsoft and its NT resellers on their toes. Remember, Apple was an effective foil to Microsoft/Intel until the company stopped innovating in its core market.

"But what about the desktop?" I argued. "Surely you've given up the fight to make Unix a viable player there." Yes, McNealy responded, but Sun's mass-market strategy is thin clients that run Java, not big PCs. And that Java thing has a bit of a head of steam, don't you think?

Touche. The fact is, Sun has put some genuine thought into this seemingly stubborn stance.

Paul Gillin, Editor
Internet: paul_gillin@cw.com
www.ultranet.com/~pgillin

The 5th Wave by Rich Tennant



Want a cheap PC? Try Apple

By Stewart Deck

Capping off unexpected profits, Apple Computer, Inc. last week further startled the industry by rolling out dramatic price cuts.

Apple announced Thursday that it will cut prices on its Performa line of computers. The move will, for the first time, drop the price of the Macintoshes below that of comparably powered PCs.

With the price cuts, "these Performas represent the best price/performance value in either PCs or [Macintoshes]," said Tim Bajarin, an analyst at Creative Strategies, Inc. in San Jose, Calif.

"This is a very important move for Apple," Bajarin said. "Coming into the Christmas buying season, [Apple] needs to be perceived by first-time computer purchasers as a competitive player. This is a bold move that puts them back on the map."

Discounts

Prices for the Performa 6400/200 and 6400/180 models were slashed 20%. The price of the 200-MHz system dropped $600, from $2,799 to $2,199.

The 6400/200 model comes with a built-in circuit board that lets users edit VHS-quality videos using technology jointly developed by Apple and Avid Technology, Inc. Avid is a movie special effects and video-editing technology firm in Tewksbury, Mass.

At the low end, Apple unveiled the Performa 6360, a 160-MHz machine with a 28.8K bit/sec. modem and an eight-speed CD-ROM drive. It will cost $1,499.

"This is a good first step for Apple. They're introducing new and competitive products," said David Wu, an analyst at The Chicago Corp. in New York. "They won't be successful just by cutting prices. That's a good start but not what will make them successful in the long run." He said Apple needs to continue rolling out new products in the next few quarters.

& **Apple is back in the black** — for now. See page 32.

News Shorts

Outsourcing shelved

In the wake of its purchase of **U.S. Healthcare Corp.**, **Aetna Life and Casualty Co.** has shelved plans for what could've been the largest outsourcing contract of its kind, *Computerworld* has learned. Aetna bought U.S. Healthcare in April for $8.18 billion. Officials at the company said the restructuring prompted Aetna to postpone any outsourcing plans until late 1998 at the earliest. As part of its restructuring, Aetna will cut 4,400 employees, including 100 of its 4,000 information systems staffers. The insurer will consolidate 44 customer service centers into six or seven "super service centers." But Aetna is likely to hire more IS staff in the future as it installs customer service systems to support the super centers, a spokesman said.



A 'net app in the mail

The **U.S. Postal Service** is developing a Java-based electronic forms application that will let customers submit bulk mail acceptance forms through the Internet. The WebForms application will let customers download bulk mail acceptance forms from the Internet instead of having to fill out the forms by hand and submit papers to postal clerks. The Postal Service is working on the project with Sun Microsystems, Inc. and Enterprise Productivity Systems, Inc.

NEC hits dumping claim

NEC Corp. last week filed a request to have the Department of Commerce stop its investigation of alleged dumping of NEC supercomputers into the U.S. market. NEC claims the department improperly blocked the sale of NEC equipment to a climate research center in Colorado based on faulty numbers supplied by competitor Cray Research, Inc.

Internet bank launched

Carolina First Bank in Greenville, S.C., recently launched Atlanta Internet Bank, an Internet-based banking service (www.atlantabank.com). The service, which includes interest-bearing checking accounts, direct deposit and electronic bill payment, offers AT&T WorldNet Service subscribers a limited-time offer of 7% interest rates on its NetVantage money market accounts.

Year 2000 pact

Bellcore in Morristown, N.J., and **Peritus Software Services, Inc.** in Billerica, Mass., have announced plans to jointly develop a comprehensive approach to year 2000 problems. Under the agreement, Bellcore and Peritus will provide network operators and their equipment suppliers with consulting, conversion and testing services. The services offered may help reduce the risk of date-related business, operations and network-based year 2000 programming glitches.



IBM workers mull union

Employees at **IBM**'s Endicott, N.Y., plant may form Big Blue's first labor union. The workers are meeting with representatives from the International Union of Electronics Workers. They said they are threatened with mass firings if enough of them won't accept a buyout plan. The workers also said they are forced to work overtime and face the hiring of employees at vastly lower rates than their own.

State tackles year 2000

Data Dimensions, Inc., a consulting services company in Bellevue, Wash., has been retained by four agencies of the state of California for initial assessment and planning for year 2000 conversion. California's Franchise Tax Board, Board of Equalization, Department of Industrial Relations and Department of Transportation have awarded Data Dimensions contracts that total $600,000.

SHORT TAKES **AT&T Corp.**'s profits dropped 11% to $1.4 billion in the quarter ended Sept. 30, compared with results for the same quarter last year. Sales increased 2% to $13.23 billion. ... **3Com Corp.** last week announced a free software upgrade that lets its line of NetBuilder routers support firewalls to prevent intruders from hacking into wide-area LAN internetworks.





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Oct. 21, 1996

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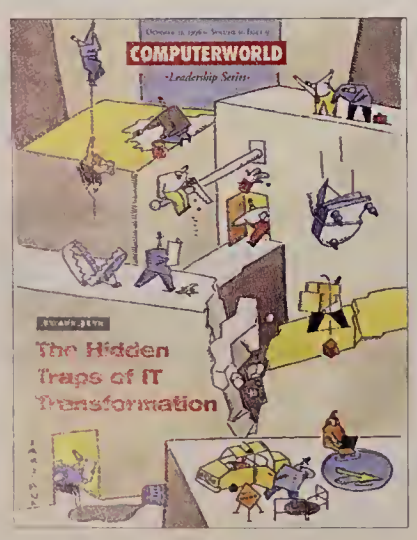
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Leadership Series

Gotcha!

Even smart CIOs fall into the hidden traps of information technology transformation. Learn how to spot these traps.

Following page 64.

Info overload: A hazard to career

By Julia King

Half of all managers have too much information, which endangers health, strains personal relationships, wastes time and cripples decision-making.

The challenge for information systems managers is twofold: Getting a grip on their incoming flood of paper, faxes, electronic mail and voice mail, while helping to stem the information tide washing up on users' desktops.

Already, 40% of managers say their work environment is extremely stressful on a day-to-day basis. And thanks largely to the Internet and fast-spreading corporate intranets, 94% say it will get worse.

Moreover, 44% of managers say the cost of collecting information already exceeds its value to business.

Those are just a few of the findings of an international survey of 1,300 managers, who blame information glut for off-the-chart stress levels and growing job dissatisfaction. In the U.S., 500 managers responded to the "Dying for Information?" survey published last week by Reuters Business Information.

"Having too much information can be as dangerous as having too little," said psychologist David Lewis, a fellow at the International Stress Management Association who coined the term "information fatigue syndrome." "Among other problems, it can lead to a paralysis of analysis, making it far harder to find the right solutions or make the best decisions."

The catch-22 is that most managers feel they can't operate effectively without a high level of information. Here is where IS can help.

"We try to customize information flow to managers to fit their needs," said Wayne Gacnik, corporate IS director at Sherwin Williams Co. in Cleveland.

E-mail cutback

Sometimes less is more, especially when it comes to use of technology. At Steelcase, Inc. in Southfield, Mich., financial systems manager Diane Schwarz and her eight-person team agreed to reduce E-mail as a way to boost productivity.



Servus Financial's Mike Rusk *says he didn't have enough time to digest all the information he was receiving, so he cut back on data sources*

"We were all just feeling overloaded. We were sending E-mail to somebody 50 feet away," she said. "To make our group more effective, we decided to use visits to people's desks or the telephone."

A high degree of selectivity works best for Mike Rusk, IS director at Servus Financial Corp. in Herndon, Va. Until he recently canceled all but two subscriptions, Rusk was receiving 20 technology publications per week.

"It was causing me to be frantic. I saw technology moving so fast, at least on paper, and I couldn't keep up with it," Rusk said. "I was getting very frantic and angry, and I wanted everything to stop so I had time to digest it and see how it fit into our organization."

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Breaking News

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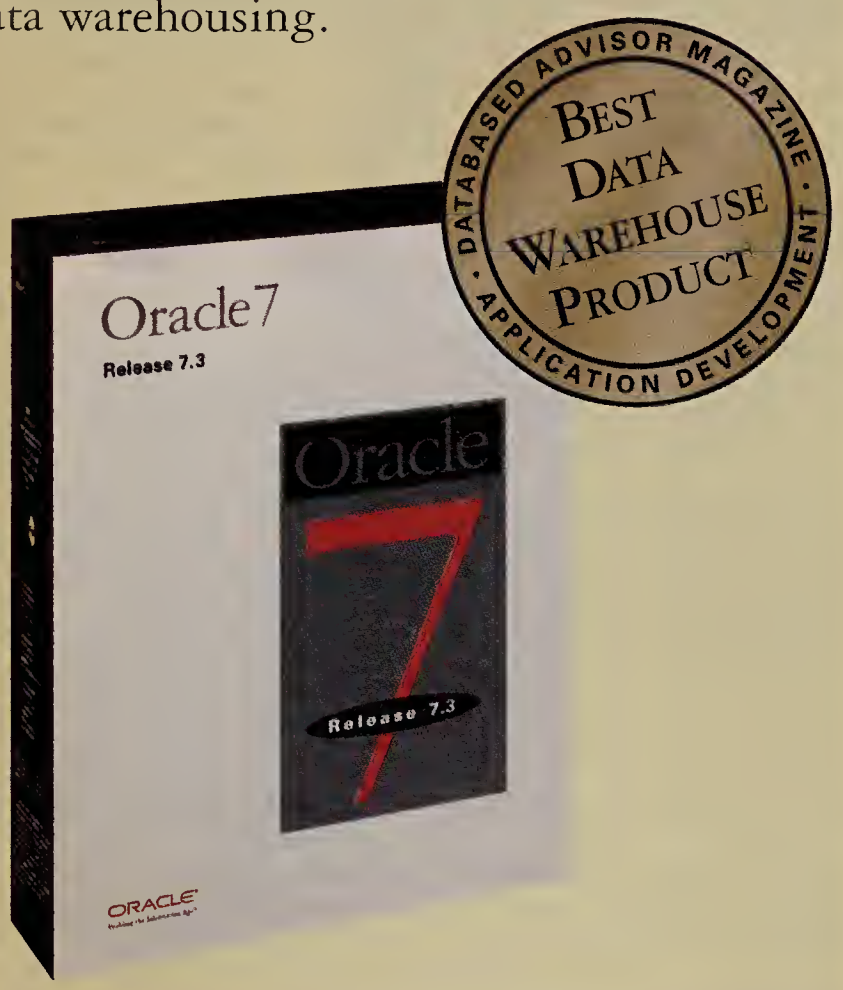
Leadership
The hidden costs of IT transformation.
www.computerworld.com

CIO traps
Change agents who can't change: Even the best CIOs get tangled in these traps. Ann Seen, a principal at Deloitte & Touche, shows how to find them before they wreck your projects and sabotage your reputation.
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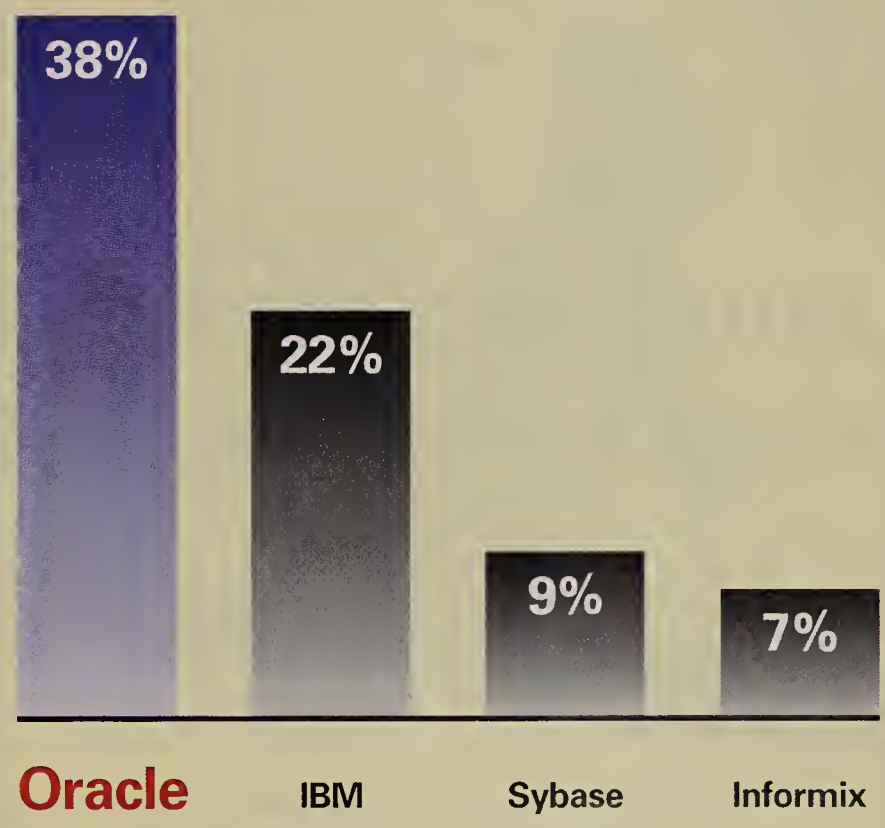
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Users caught in Cisco, Cabletron sniping

By Bob Wallace

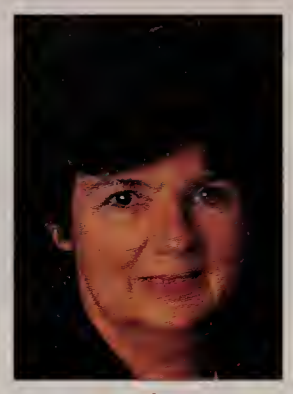
A battle between networking vendors Cisco Systems, Inc. and Cabletron Systems, Inc. over Cabletron's negative advertising campaign came to a head last week. And the results left customers angry with both sides.

Retaliating against the attack ads, Cisco said it would stop licensing its routing software to partner-turned-adversary Cabletron as of year's end.

Compounding decisions

That decision has complicated users' buying plans for next year. Their choices include buying stand-alone routers, migrating to an advanced switching scheme from Rochester, N.H.-based Cabletron ahead of time or turning to Cisco, in San Jose, Calif., for help.

"This situation is really infuriating primarily because it's needless and complicates the lives of customers," lamented Pat Laughran, director of network services at Babson College in Wellesley, Mass. "Neither vendor bothered to ask me how these moves would affect my 4,000-user network here."



Emory's Barbara Maaskant: *'For some reason, we have absolutely no say in the matter'*

"This situation is a disaster for Cabletron because it [leaves Cabletron] essentially without industry-standard routing," said Eric Hindin, an analyst at The Yankee Group, a Boston consulting and research firm. "And not everyone is ready to move to [the next-generation switching scheme] for Cabletron's proprietary routing."

Cabletron has used Cisco's Internetwork Operating System (IOS) in its hubs for six years. But Cabletron incurred Cisco's wrath by running an ad campaign that attacked Cisco's switches and routers. It even suggested users may jeopardize their careers by choosing Cisco.

In response, Cisco said it won't renew Cabletron's IOS licensing deal.

Cisco's action will prevent Cabletron from selling router-on-a-card devices for its many hubs.

Users who need those devices have several options. For example, they can move to Cabletron's next-generation switching scheme, which offers internally developed routing, or they can turn to Cisco for help.

Cabletron still has a maintenance and support agreement with Cisco.

But users don't like being put in these situations.

"The user is definitely the loser in these scenarios," said Barbara Maaskant, executive director of information services at Emory University's Goizveta School of Business in Atlanta. "We're a stakeholder in this situation, and for some reason, we have absolutely no say in the matter."

The Cabletron/Cisco predicament promises to make it tougher for users considering Cabletron equipment to reach a decision. They won't be able to get Cisco routing in Cabletron switches and may opt for Cisco switches instead, analysts said.

Everything up front

"I feel bad for people making 'start' decisions in this environment," Maaskant said. "They have to make sure that they get all the commitments and agreements they need in writing all the way down the line."

Some users said they expect similar situations in the future.

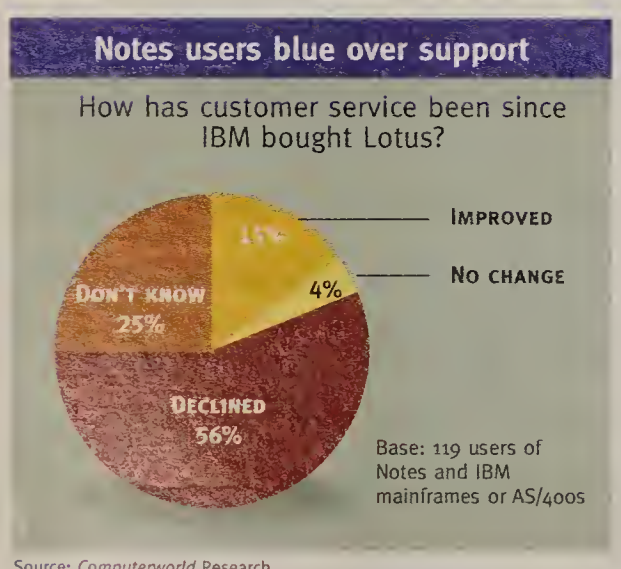
"With the heavy industry consolidation, vendors that were partners and worked together are becoming serious adversaries," said Ken Cieszynski, staff engineer at United Airlines in Elk Grove Village, Ill.

Lotus Notes customers criticize IBM support

By Tim Ouellette

Lotus Notes users like where the product is going. If only they could find some help getting there.

A *Computerworld* survey this month of 152 IBM system shops that also run Lotus Development Corp.'s Notes found that they approve of Notes' quality and Internet-based strategic direction but that they give low marks to the sales and support effort behind the groupware platform.



Source: *Computerworld* Research

Of particular concern is the coordination between Lotus and IBM sales and support staff. Since the June 1995 merger, IBM has made sure to preserve Lotus' identity and freedom in product development. But work is under way to bring IBM and Lotus sales and support staffs up to speed on each other's products.

"Notes is a good product," said a survey respondent who wished to remain anonymous. "The explosion in use has sorely taxed resources of Lotus, and the extra IBM people just don't have a clue yet. But if things are working right and you use resources like the Web, you can be successful."

Eddy White, a programmer and analyst at Blue Cross/Blue Shield of Montana in Helena, said it sometimes takes so long for Lotus support to get back to him, he feels as if he is getting the runaround.

The health care provider is piloting Notes. If the pilot is successful, the company may roll it out to more than 500 users, White said.

Support concerns aren't limited to Notes. The companies surveyed also are IBM mainframe or AS/400 shops — IBM's bread-and-butter customer base.

Members of Common, IBM's midrange user group, this week will list IBM product support as one of the top issues at their conference in Atlanta. IBM plans several forums there to address those issues (see story at right).

Analysts said Lotus has long had a reputation for spotty service and support but has made several changes this year concurrent with the January rollout of Notes 4.0. Those included the following:

- A simplified enterprise support program.
- Product discussion forums on Lotus' World Wide Web page.
- Personalized Web pages that give users updates on only the product information they need.
- Web browser access to online Notes technical documents.

Meanwhile, some users avoid Lotus support altogether. For example, Aurora National Life Insurance in Inglewood, Calif., bought Notes and related support from Stream International, Inc., a Notes reseller in Norwell, Mass.

"We've had mixed results, but overall it has been positive," said Noel Adams, an advisory systems programmer at Aurora.

Still others turn to online newsgroups, where they depend on other users for answers rather than Lotus or IBM.

"I know one thing," wrote one user after Lotus' support Web servers went down. "If Lotus themselves can't keep their own Web servers online, there is no way I would ever consider using them."

Vendors to unveil AS/400 support

At the Common midrange users conference in Atlanta this week, vendors will introduce software that makes it easier to access IBM AS/400 data from several platforms and applications.

Expected announcements include the following:

- **Andrew Corp.** in Orland Park, Ill., will unveil a Macintosh client for the IBM AS/400.
- **Advanced Businesslink Corp.** in Bellevue, Wash., will announce software that lets Web browsers run as full-feature AS/400 clients through the use of Java applets.
- **Starquest Corp.** in Berkeley, Calif., will introduce software that lets Unix workstation users directly access AS/400 databases, without using terminal emulation software. IBM already has similar software for OS/2, Windows 3.1 and Windows 95, with an Windows NT client under development.
- **IBM** is developing middleware — code-named Project Lightning — that will allow applications written in Microsoft Corp.'s Visual Basic to directly access AS/400 data. The software is based on Microsoft's OLE and ActiveX specifications.
- **IBM** will preview Project Unity, a Windows-based interface for handling administrative chores on the AS/400.

Observers said the products help make the AS/400 a viable option as a server for client/server systems that use multiple operating systems and applications. — *Tim Ouellette*

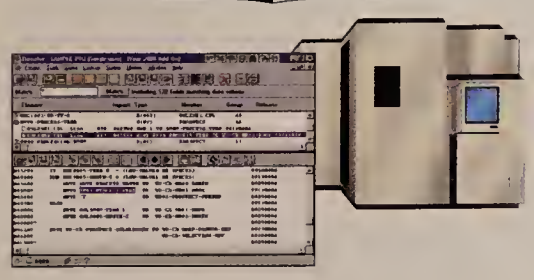
Corrections

Today's Leadership series article, "The Hidden Traps of IT Transformation," lists an incorrect uniform resource locator for Federated Department Stores' bridal registry World Wide Web site. The correct Web address is www.weddingline.com.



Meet your Century Date Change problem head-on with Micro Focus Revolve/2000

A lot of software vendors are charging into the market with Year 2000 "solutions," but look closely—you'll find many are proprietary, incomplete, or make claims you know are too good to be true. With our experience, we know better. Micro Focus Revolve/2000, gives you tangible, comprehensive technology in a single package that lowers your risk and addresses every step in the process.



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Sun ripens JavaBeans ahead of schedule

API released early in race with ActiveX; Microsoft counters

By Sharon Gaudin

The race is on.

Sun Microsystems, Inc. late last week released the application programming interface (API) for its JavaBeans initiative. It is Sun's attempt to edge its way into the corporate market before Microsoft Corp.'s ActiveX technology can gain a stranglehold.

But Microsoft didn't sit quietly. The day after Sun's announcement, Microsoft released the beta version of ActiveX for the Macintosh, crossing platform boundaries and putting some action behind its promises to open ActiveX to a broader range of users.

Java is Sun's component-based, platform-independent development language used mainly for Internet applications. JavaBeans is a Java-based architecture that enables components, including Java applets, ActiveX controls and OpenDoc components, to communicate with one another.



ActiveX is Microsoft's component architecture, an Internet offshoot of OLE and JavaBean's main competitor. Both are racing to dominate the component architecture realm.

The API specification forms the component architecture for the Java platform. It can be downloaded from java.sun.com/beans. The specification, which wasn't expected until December, was delivered two months early.

Paul Mahowald, vice president of retail systems development at Fort Lauderdale, Fla.-based Blockbuster Entertainment Group, said he was excited to hear that the specification is out ahead of schedule.

"It's very important for us," Mahowald said. "The ability for applications to seamlessly share data means you can build navigation to carry information from one application to another. It'll allow us to build more powerful and full-featured applications in Java."

Problem solver

"JavaBeans solves a lot of problems for us down the road, if it works," said Larry Hagerty, a senior systems analyst at GTE Data Services, Inc. in Tampa, Fla. "The fact that it came out early is a good sign."

"We've got people looking at developing widely distributed applications, and a lot of their design work has been put on hold because they want to see the JavaBeans spec to see if it's something we can use or not," Hagerty said. "From the early reports, it sounds like it is something we can use."

> "It'll allow us to build more powerful and full-featured applications in Java."
>
> —*Paul Mahowald, Blockbuster Entertainment Group*

A group of major industry players has already thrown its support behind JavaBeans, with many companies saying they are building tools to create applications that use JavaBeans. The list includes IBM, Oracle Corp., Netscape Communications Corp., Apple Computer, Inc. and Borland International, Inc.

Evan Quinn, an analyst at International Data Corp. in Framingham, Mass., said Microsoft's decision to release ActiveX for the Macintosh was a positive sign. "If ActiveX wants to play in corporate adoption, they have to go cross-platform. Mac is a nice step," he said.

The beta release of ActiveX can be downloaded from www.microsoft.com/intdev/sdk/mac/. The final version is expected by year's end.

Oracle courts mobile, intranet users with Power Objects enhancements

By April Jacobs
and Sharon Gaudin

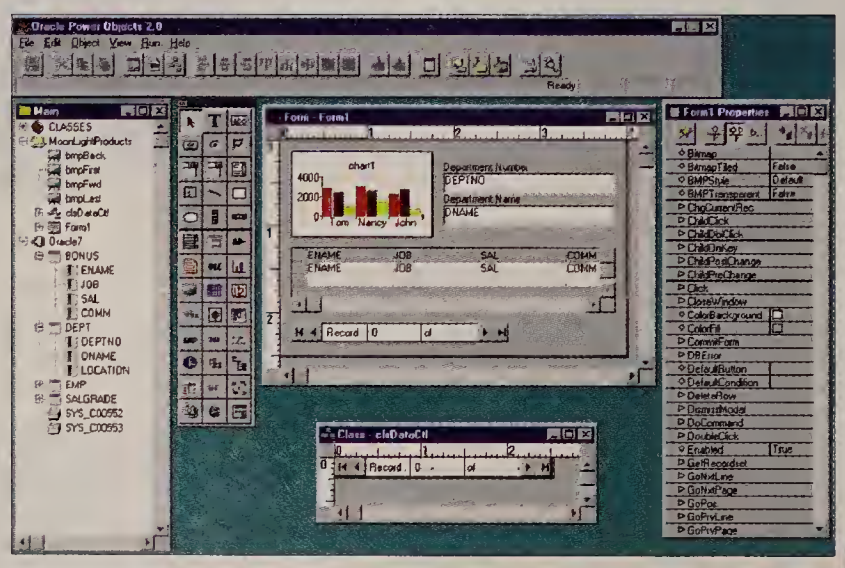
Oracle Corp. next month plans to introduce a new version of its Power Objects application development tool with new features for mobile and intranet users.

Mobile features in Version 2 will include full replication support with the Oracle Universal Server and local database support. Intranet features include a Netscape-compatible plug-in that allows access to Power Objects applications through World Wide Web browsers. It also includes support for third-party ActiveX Internet controls, including Post Office Protocol 3, file transfer protocol and Simple Mail Transfer Protocol.

Michael Barnes, a research analyst at Hurwitz Group, Inc. in Newton, Mass., noted that Power Objects Version 2 uses the Open Database Connectivity standard to broaden its access to hundreds of data sources, up from just a few in previous versions.

"It's kind of a big deal because Oracle likes to talk about cross-platform, and it's hard to do that when you're proprietary on the database," Barnes said. "You can't have them both."

In addition to bundled OLE controls, new features will include the following:



Oracle's Power Objects Version 2 *allows developers to build applications for mobile and intranet users*

- Crystal Reports 5.0, a reporting tool for SQL databases.
- Object Navigator, which presents a hierarchical view of all the objects on the desktop.
- Grid Control, which was designed to provide horizontal scrolling, highlighting and dynamic column-and-row resizing.

Improved performance

Richard Jowsey, director of development at SFC Desktop Business Systems, a consulting and software engineering firm in San Francisco, uses Power Objects to develop applications that track the steps involved in aircraft maintenance. He said support in the new version for Microsoft Corp.'s Windows 95 and NT operating systems has improved performance.

Jowsey said his company "had an immediate problem with the first version in that there wasn't support on Windows 95 and NT — those are platforms that are important to us. Now we're getting better performance, and they've expanded the reporting side of it."

Power Objects Version 2 is priced at $295 per seat or $149 per seat for users upgrading from Version 1. A client/server edition costs $1,495, or $495 to upgrade.

EMC routes storage traffic off networks

By Tim Ouellette

EMC Corp. this week will announce three products that help users avoid clogging their corporate networks with storage-related data traffic.

The add-ons to EMC's Symmetrix high-end disk arrays route storage data back and forth to mainframe systems over dedicated high-speed data channels.

The announcements include the following:

Storage

- Symmetrix Multihost Transfer Facility, software that performs high-speed bulk file transfers among different platforms, especially for online applications.
- Fast Dump Restore Safeguard Open Systems, backup software that moves data from LAN system servers to the mainframe storage system. That means users can avoid building a separate storage system for their LANs.
- Symmetrix Network File Storage, a file server for bandwidth-hogging applications such as imaging and multimedia. The first version will be aimed at Unix systems that run over Ethernet or fiber networks. Support for Windows NT and Asynchronous Transfer Mode environments will be added next.

Observers said EMC, in Hopkinton, Mass., is giving users mainframe-like capabilities for their hodgepodge of open systems devices.

"People have paid the price of distributed systems because the manageability of distributed storage has been difficult," said Farid Neema, president of Peripheral Concepts, Inc. in Santa Barbara, Calif.

For example, Network File Storage gives users online fault-tolerance in an open systems environment, Neema said.

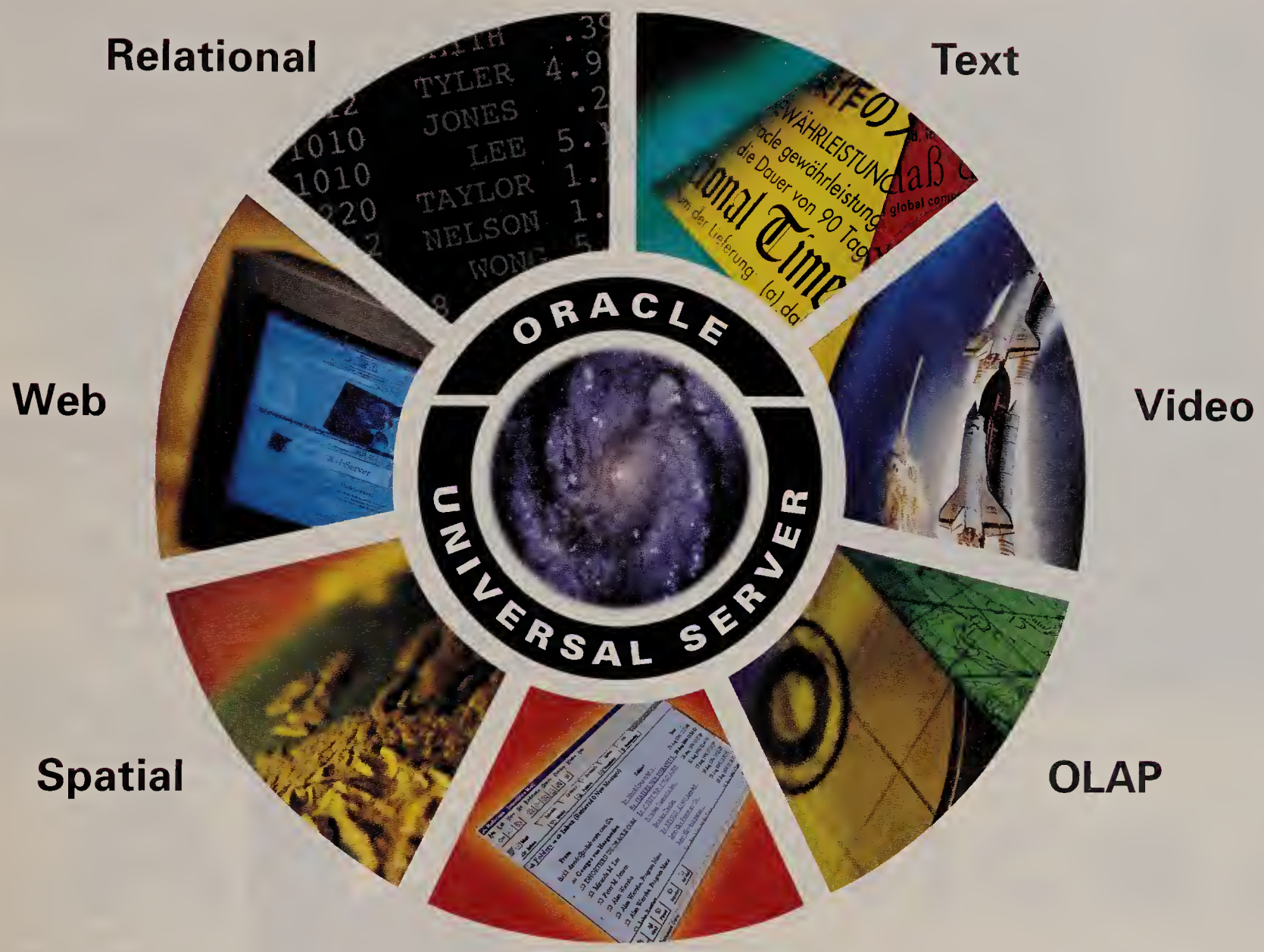
And the bulk transfer facility can move data between mainframe and open systems at up to 5M byte/sec. faster than typical corporate networks.

That is crucial for making data sharing a reality for users who work on different platforms, said Phil Orton, director of centralized operations at Entergy Corp., an energy firm in New Orleans.

Entergy hopes to cut file transfer times and save money by avoiding the need to buy additional network hardware, he said.

All three products will ship this week. The bulk transfer tool costs $30,000 to $60,000, depending on configuration. The backup package starts at $12,000, and the high-speed network file server starts at $125,000.

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Rmon tools offer view of app activity

By Patrick Dryden

Vendors are making progress in providing the next generation of interoperable Remote Monitoring (Rmon) network tools.

A dozen vendors recently tested the compatibility of their products with the latest draft of the Rmon 2 specification, which is near approval by the Internet Engineering Task Force.

The Rmon 2 spec applies to application activity across a network. That extends the usefulness of Rmon, which troubleshoots individual segments of a network.

Technically Elite, Inc. in San Jose, Calif., this week will introduce Rmon 2 capabilities for its MeterWare monitoring application and probe units. Those upgrades will be available next month.

Vendors such as Frontier Software Development, Inc. and Hewlett-Packard Co. have provided Rmon 2 capabilities for a while through proprietary extensions to basic Rmon. Those vendors and others last week said the adaptations to the specification are on schedule.

Rmon: the sequel

Basic Rmon

- Views a single monitored segment
- Tracks errors, utilization and protocols
- Helps troubleshoot by capturing packets

Rmon 2

- Views conversations end to end
- Evaluates traffic by application
- Helps explain usage patterns

In the next five months, users can expect to see interoperability among products they need to monitor the performance of networked applications and to understand their evolving capacity demands.

For example, one vendor's analysis software will be able to monitor the stand-alone probes and agents embedded in devices from other vendors.

"We've been concerned about interoperability. But the spec seems pretty much cast in concrete at this point, so we have no problem deploying Rmon 2 products," said Darrell Epps, a communications engineer at Chevron Information Technology Co. in San Ramon, Calif.

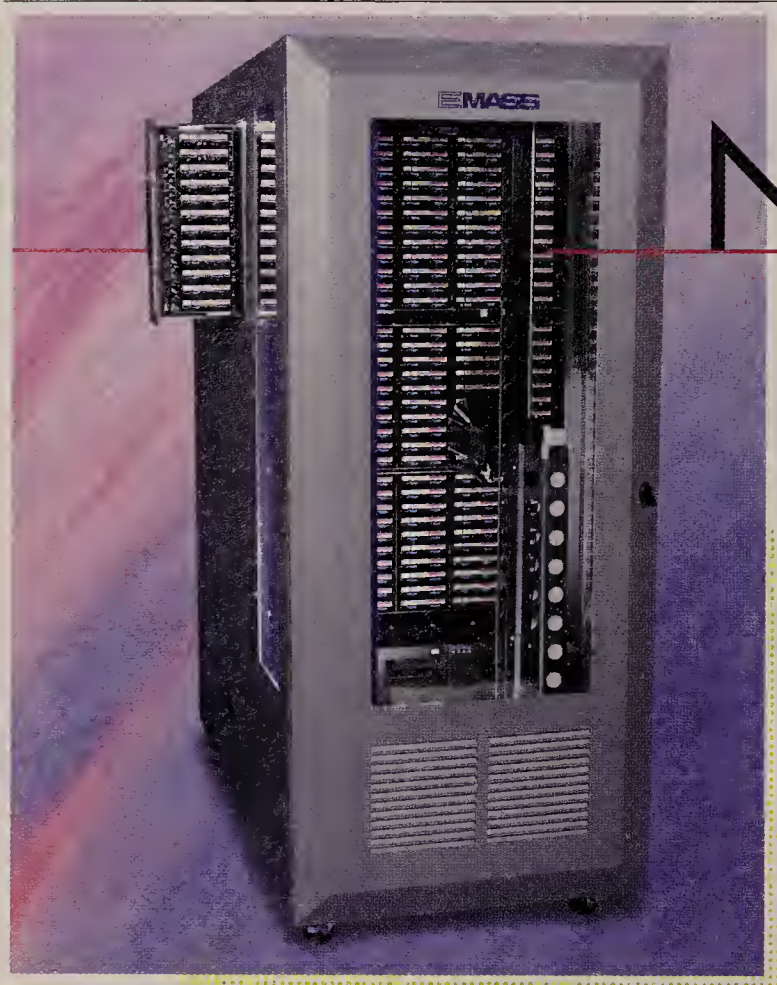
"We're hit regularly with questions about how much bandwidth is consumed by E-mail or Web traffic," Epps said. "When we get Rmon 2 fully deployed, we can answer more easily."

Basic Rmon probes and switch agents are in place at Delmarva Power & Light Co., so there is no need "to drag a protocol analyzer to 40 locations to capture packets" for LAN troubleshooting, said John Scoggin, chief technical adviser at the utility.

If the cost of upgrading the current tools isn't too steep and they work together, the resulting Rmon 2 view could help with the rollout of an SAP AG R/3 application to more than 1,000 users in January, he said.

"We've already modeled the application's impact on our network, but Rmon 2 would help us monitor user response time when we go live," Scoggin said.

MainControl brings out suite to manage large firms' PC hardware and software. See page 69.



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Empire strikes back against legacy system

New CIO attempts to cure ills at N.Y. health insurer

By Thomas Hoffman
NEW YORK

IBM SNA or TCP/IP? OS/2 or Windows?

Those are some the many decisions Louis B. Hughes, the recently named chief information officer at Empire Blue Cross and Blue Shield, expects to make by year's end.

Hughes, former technology chief at Salomon, Inc. and a 36-year industry veteran, faces daunting challenges as he attempts to meld Empire's legacy infrastructure with the low-cost, high-response requirements of the managed care industry.

The pressure is on because Empire plans to restructure itself as a for-profit company.

And there is plenty of room for improvement. In 1994, the most recent year for which figures are available, Empire had the seventh-highest complaint ratio among 71 health insurers in New York and the highest among nonprofits, according to the New York State Insurance Department.

In the past decade, Empire's membership has dwindled from 10 million to 4.7 million customers.

In his first 100 days, Hughes has spearheaded several information systems projects designed to cut costs and improve data access.

Empire is defining a new network infrastructure and desktop hardware and software standards to help reduce management costs and to improve data sharing with hospitals and other providers.

Empire is linked to 10,000 physicians over an IBM SNA network.

Hughes said Empire is trying to determine whether expanding its TCP/IP network would improve file sharing with outside providers.

Empire uses 4,000 image-enabled IBM OS/2 workstations and 2,500 Windows PCs. Hughes said he is satisfied with the performance of the Sigma Imaging Systems, Inc. system. But he said he wants to standardize on another operating system such as Windows NT or Unix to "coexist" with OS/2.

Corporate strategies

Empire's desktop operating system also must map with the IBM DB2 and Oracle Corp. relational databases that are being installed or upgraded to support the company's new clinical and financial data warehousing systems.

Data for doctors

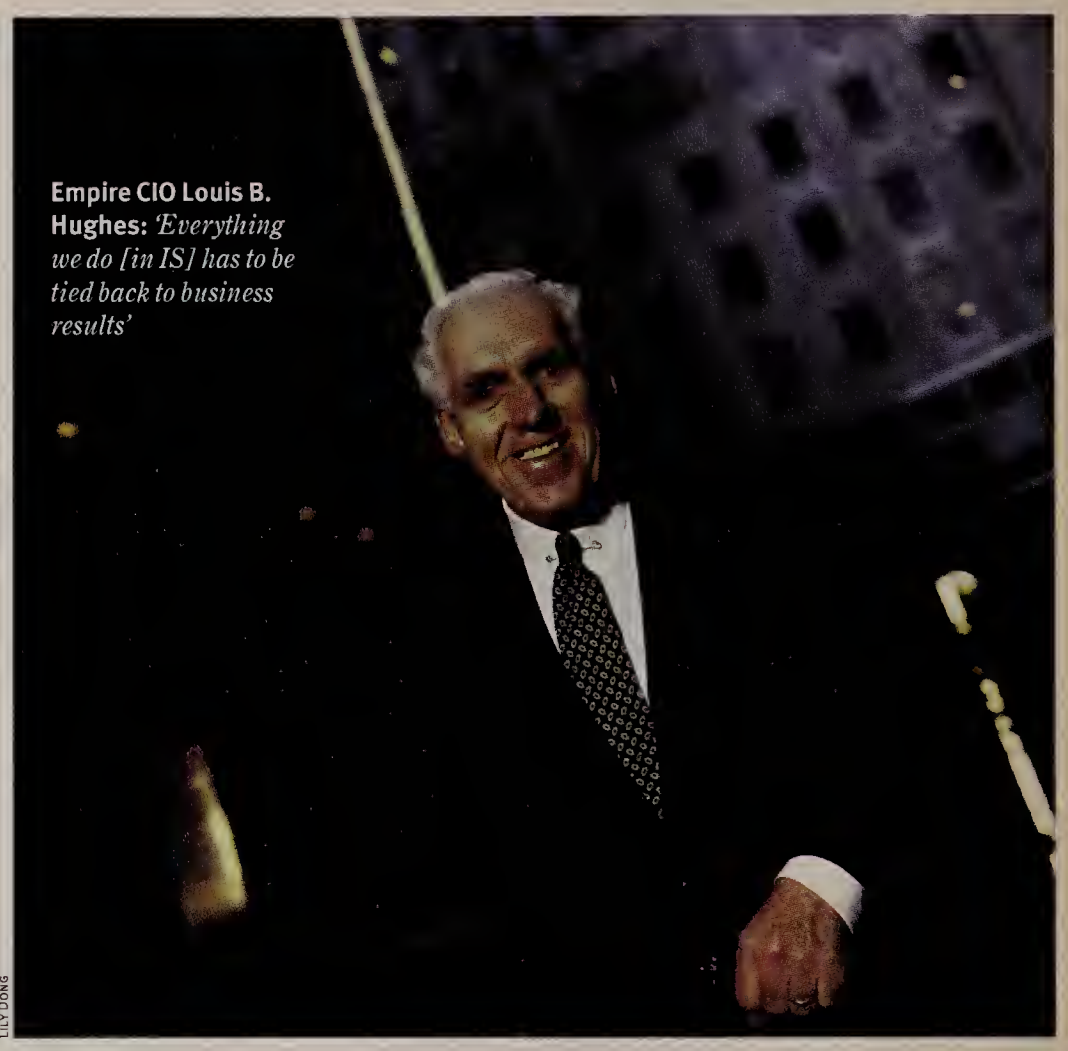
Empire administrators can do some data mining through preconfigured analyses, Hughes said. He said he hopes to exploit more robust data mining tools to let the company identify cost-saving opportunities.

Hughes said Empire can better leverage its clinical data, for example, to identify a patient with a history of being hospitalized every August for asthma.

With the ability to identify trends, Empire could recommend that the patient's primary care physician prescribe medication that could improve the patient's "wellness," Hughes said.

Hughes said he expects Empire to have some of its clinical data mining in production by year's end. He declined to quantify the costs of the projects. But he said Empire expects the desktop standardization and data mining projects to help the company reduce its IS budget next year and in the future from the $90 million that was set aside this year. This year's IS budget is down from $135 million in 1994, and its IS staff has dwindled from 900 employees to 670 during the same period.

Analysts described Empire's clinical data mining efforts as leading-edge among health care insurers. "But I'd be surprised if [Empire] can implement new technology that dramatically changes the way they do business while lowering their IS budget at the same time," said Mel Van Howe, vice president of marketing and applied technology at CSC Healthcare Systems.



Empire CIO Louis B. Hughes: *'Everything we do [in IS] has to be tied back to business results'*

LILY DONG

& **Wells Fargo** deals with the loss of IS execs during merger. See page 89.

Tivoli puts management under one roof

Unified suite centralizes network control

By Patrick Dryden

Tivoli Systems, Inc. last week introduced linking software that promises to eliminate "islands of management" for administrators of enterprise networks, systems and applications.

Global Enterprise Manager (GEM) software integrates tools for managing IBM mainframe functions with those in the new Tivoli Management Environment (TME 10) for distributed client/server networks.

Other vendors also will link their products to this unified management suite by early next year.

That means central operators will be able to watch vital business applications that affect all users in the firm. The benefits are streamlined control and lower costs.

Management integration services in TME 10 Global Enterprise Manager

- Applications policy
- Performance
- Job scheduling
- Commands
- Event automation
- Problem management
- Network management
- Topology view
- Security
- Storage

"This management model is very appropriate for us because it centralizes control over both host and distributed applications," said Diana Beecher, vice president of technical engineering at Travelers/Aetna Property Casualty Co. in Hartford, Conn. "That's the way we want to go."

Lower costs

By integrating separate sets of management tools, the insurance firm can lower the skill level and number of operators required to watch applications that issue policy claims, Beecher said.

That is because TME 10 GEM automates management tasks that span diverse systems and networks and screens operators from the technical expertise that each component demands, she said.

"This could serve as a front end to all our disparate [E-mail] systems, for example. Then a less-skilled operator could watch the basic flow of messages while GEM deals with our distributed, Notes and homegrown mainframe E-mail systems," she said.

For example, she said, the operator could issue a command to restart a stalled E-mail process while TME 10 GEM forwards alerts to the appropriate second-level specialists who can fix a server drive or directory entry.

Tivoli users such as Florida Power Corp. said they are glad to see mainframe tools finally linked to those used to manage Unix and Windows NT systems. That was promised in January when IBM acquired the Austin, Texas-based vendor to take over its management software efforts.

"Instead of all the separate products, we want one management suite integrated from the mainframe to the desktop," said Mitch Hull, director of software development and support at the utility in St. Petersburg, Fla.. "Then we can migrate platforms however we want, without changing our tools and duplicating our effort."

The software will be available in December. Prices haven't been set, but customers can buy the pieces per Tivoli's licensing model or extend their IBM System/390 enterprise software pacts.

Tivoli remains on track with its promises and "in charge" of its relationship with IBM, said Paul Mason, director of the enterprise systems management program at International Data Corp.

"This step is amazing compared to IBM's past efforts to integrate all management tools as SystemView. SystemView was all promise and no delivery," he said.

FedEx Ship 2.0

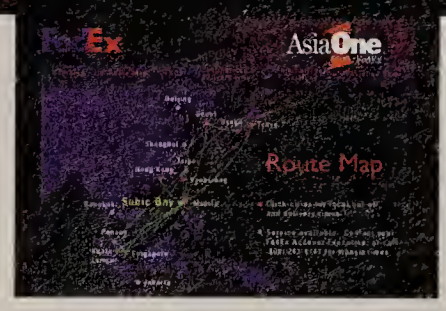


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IS workload frazzles families

CONTINUED FROM PAGE 1

ery day as companies — many of them downsized — rush faster than ever to get products and services to market.

"Right now, organizations are locked in time-based competition — whoever gets their products to your door first retains 80% of the customers," said Bob Zawacki, a University of Colorado professor and IS human resources expert.

"The pressure on individual contributors is unbelievable," Zawacki said.

For example, until last year, Scott Salanda, an electronic commerce development manager, frequently stayed through the night to finish his work at R. R. Donnelley & Sons Publishing Corp. in Chicago. In the wake of budget and personnel cutbacks, Salanda had strategic planning and other administrative tasks heaped on top of his project management responsibilities.



Price Waterhouse's Mark Johnson*'s busy travel schedule does have some benefits. His wife and children have traveled to the Netherlands and throughout the U.S.*

Working too hard

After having worked himself to the point of exhaustion, he finally took seven sick days before telling his boss "something had to change." Fortunately for Salanda, his boss was receptive and redistributed his workload, which ultimately shortened his hours.

Marc Liles, formerly an IS director at North Carolina's attorney general's office, knows all about that kind of pressure.

"Usually, I spent 10 or 11 hours a day working," said Liles, who also holds a law degree and now is an attorney at North Hills, Inc., a commercial real estate company.

"Also, on weekends, I was on call with a pager," Liles said. "One morning, I went to work and didn't come home until the following afternoon. I had spent as much as 36 hours straight on the job."

After three years, several rejected requests for additional IS resources and the breakup of his marriage, Liles left the state IS post to practice real estate and computer law at a private firm.

"There's no doubt that it was a strain on our marriage," Liles said of the around-the-clock hours he spent at his former IS post. "Now I realize there's no one who can keep up a 70- or 80-hour-a-week work pace forever. Sooner or later, it's got to stop."

At some companies, workweeks of 40 hours and more are the exception rather than the rule. But such firms are definitely in the minority. SAS Institute, Inc. in Raleigh, N.C., is among them. It has a company-wide 35-hour workweek policy.

That policy is what allows IS workers such as Mike Stockstill, a 33-year-old technical support statistician at SAS, to more easily balance work with training for long-distance road races, sailing and playing bass in a jazz and swing trio.

The 35-hour workweek "allows me to get out of here with enough energy left to have a life. Then, when I'm ready to come back and work, those seven hours I put in are productive hours," he said.

Meanwhile, Telephone Express, Inc.'s 30 IS staffers continue to log 50-plus hours per week. But thanks to recently issued laptop computers, digital pagers and cellular telephones, they can complete their work from home or wherever else they choose.

"Some people see this as a burden because now they're available all the time," said Carol Norman, major accounts manager at the Colorado Springs-based long-distance company. So, in addition to the high-tech tools, "we have to send them home with proper goals and expectations that need to be met," Norman explained. "You have discussions about quotas and goals, and if they meet those, both the individual and organization are happy."

Time for work and play

When M. Lewis Temares, vice president of information resources at the University of Miami, took on a second full-time job as the dean of the college of engineering three years ago, "I had no idea what I was getting myself into," he said.

The demands of the two jobs often leave Temares answering pages and voice and electronic mail until 2 a.m., according to his wife, Louise.

To strike a balance in their lives, Lew has dinner with his wife — and office manager — every night, often joined by his two children.

Louise, who married Lew seven years ago, also travels with him to industry conferences, such as the recent Society for Information Management (SIM) conference in San Francisco, at which Temares served as host. A few days before the SIM conference kicked off, the couple spent a day touring the vineyards in the nearby Napa Valley.

"This way, we get to see new places together and spend more time with each other," Louise said.

Five days a week, Lisa Johnson is a single parent to 8-year-old Amanda and 6-year-old twins Amy and Alex. That is the primary downside to her husband's job as a traveling SAP consultant at Price Waterhouse.

But Lisa and Mark Johnson prefer to focus on the benefits of his frequent travel and out-of-town work. For example, the entire family has traveled extensively in the U.S. and to Puerto Rico and the Netherlands — mostly on frequent-flier miles.

"Last year, Amanda did school projects on Indians and pilgrims after she was at Plymouth Rock," Lisa recalled. "The kids have even made different pen pals with kids that they met through traveling."

"We always try to look at the upside of things," Mark said. "But to have this kind of career, you need a great spouse. It's absolutely true." — *Julia King and Thomas Hoffman*

Modems offer 56K speedway to Internet

CONTINUED FROM PAGE 1

nology, users can download data at 56K bit/sec. and send information — such as Internet browser requests — at 28.8K or 33.6K bit/sec., using standard telephone lines.

The faster modem lets users download files in half the time, which reduces their connection costs, said Kieran Taylor, a broadband analyst at TeleChoice, Inc., a consultancy in Verona, N.J.

Analysts also said the speedier modems could put a damper on the growth of Integrated Services Digital Network, which offers 128K bit/sec. bandwidth but can be cumbersome to install, expensive and unavailable in some areas.

Today's highest-speed modems top out at 33.6K bit/sec. because of the limitations of phone lines. And users expressed skepticism that modem speed could be significantly boosted beyond 28.8K bit/sec.

"My question is, 'Do they really work at 56K bit/sec.?'" said Gary Troutman, director of corporate development at the Georgia Institute of Technology in Atlanta. Troutman uses U.S. Robotics modems at work.

"The technical people I've talked to say if you get 28.8K bit/sec. with a 33.6K bit/sec. modem, you're lucky," he said.

But Larry Kraft, a product marketing manager at U.S. Robotics in Skokie, Ill., said the company's X2 technology busts the 33.6K bit/sec. speed barrier with a compression scheme that lets Internet service providers use their digital capacity to blast more data back to the user.

Introducing the 56K bit/sec. modem

WHAT DOES IT DO?
Enables Internet connection rates at up to 56K bit/sec. across standard phone lines.

WHAT ARE THE REQUIREMENTS?
End user and Internet service provider must use modems with the same technology. Users need to upgrade to 56K bit/sec. technology via a software download or a chip replacement.

Dave Vande Voort, manager of corporate technologies at CUNA Mutual Group, a national credit union organization, said the technology "would definitely be of interest to us."

"We're trying to keep on the forefront here with modem technology and supporting speeds" for a sales force that needs access to the corporate LAN and the Internet, Vande Voort said.

More than a dozen U.S. Internet service providers plan to test U.S. Robotics' modems beginning in November. They include America Online, Inc., Prodigy Services Co., CompuServe Network Services, IBM Global Network Corp. and MCI Communications Corp.

U.S. Robotics has an edge among 56K bit/sec. vendors because it has a large installed base of modem users and plans to offer software upgrades at a nominal cost, Taylor said. The company's PC modems and cards will ship in February.

Rockwell plans to beta-test its central site modems in January. Lucent and Motorola also intend to release products next year.

Ernie Raper, a senior market analyst at Vision Quest, a marketing consultancy in Moorpark, Calif., estimated that 50% to 75% of the modem market will take advantage of 56K bit/sec. modems. "It's not going to be a huge capital investment [for users], so that's why it's going to go," Raper said.

To take advantage of the higher speeds, the Internet service provider and the user must have compatible, high-speed modems.

If you Build-IT, they will coordinate

By Mitch Wagner
NEW YORK

Wallop Software, Inc. plans next month to begin shipping Build-IT, software designed to help coordinate the efforts of teams of developers who build large sites on the World Wide Web.

The software was designed to help users keep track of large numbers of files on a Web site and determine who is working on which file and which files and programs have pointers and links to other files and programs on the site.

Collaboration software

"It pretty much saved our lives," said user Rich Julius, director of knowledge systems at Informix Corp., which is using the Wallop software to build a product support site.

The company has a team of seven artists, programmers and copywriters working on the site. Before using Build-IT, Informix kept track of who was working on which site by writing file names on a whiteboard.

But Tom Loane, vice president and chief information officer at Alamo Rent A Car, Inc. in Fort Lauderdale, Fla., said the product itself might not have much of a future. He said users will expect to see collaboration support and version control built in to development environments.

But for now, the product appears to be without direct competition, according to people familiar with the technology. Microsoft Corp.'s FrontPage, Adobe Systems, Inc.'s Pagemill and NetObjects, Inc.'s Fusion target overall site design and Hypertext Markup Language editing.

The software runs on Windows 95 and NT and will cost $2,495. A "lite" version, which runs as a Java applet on Microsoft's Internet Explorer or Netscape Communications Corp.'s Navigator, costs $200.

Oracle ready to ship groupware

By Tim Ouellette

Oracle Corp. is finally jumping full force into the groupware arena. The company plans to ship its InterOffice groupware suite by month's end.

Oracle had planned to ship by August InterOffice, which was well-received by analysts and users for accepting nearly any type of client access. Observers say the delay gives competitors Novell, Inc., Lotus Development Corp. and Microsoft Corp. a further head start in the race to give users group collaboration and application development [CW, June 17].

InterOffice is built on Oracle's database system. It supports the latest World Wide Web standards, including Lightweight Directory Access Protocol, Internet Mail Access Protocol and Sun Microsystems, Inc.'s Java programming language.

In a twist on the groupware theme, Oracle, in Redwood Shores, Calif., will eventually get additional word processing, spreadsheet, presentation graphics and electronic forms components into future versions of InterOffice, *Computerworld* has learned.

InterOffice for Windows NT 4.0 is expected to ship at the end of the month. A workflow module will ship later this year.



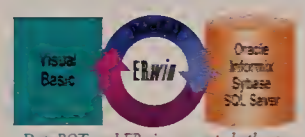
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Tandem to run on Windows NT

CONTINUED FROM PAGE 1

familiar with the announcement. The main difference will be in the middleware and clustering hardware technology that Tandem will layer on top of it.

The company is converting a series of middleware products from its nonstop server space to Windows NT. Code-named ServerWare, the products include a nonstop SQL database, a transaction processing monitor, messaging software and data objects.

Server scoop

Tandem will announce the Himalaya 7000 and 70000, the first Himalaya servers based on its ServerNet interconnect technology. They will be able to scale to several thousands of processors and several terabytes of throughput.

ServerWare products, which will begin rolling out early next year, will be able to run across Windows NT, Unix and Tandem's high-end NonStop Kernel.

"The middleware is going to be the key bridge that will link Tandem's Himalaya enterprise servers with Windows NT servers in a seamless application environment," said one source familiar with the announcement.

"It is the common software backbone that can grow from a very small departmental server all the way to an extremely large server," said James Johnson, president of The Standish Group International, Inc. in Dennis, Mass.

On the hardware side, Tandem will use its ServerNet interconnect technology to tie multiple NT servers into high-availability and performance clusters.

ServerNet basically lets users increase system capacity, performance and throughput by adding components such as CPUs, disk drives, communications links and storage.

The company also uses the technology to cluster much larger Himalaya fault-tolerant servers.

The company plans to license its ServerWare products and ServerNet technology to other server vendors. Tandem claims to have already licensed ServerNet to 11 PC vendors, including Compaq Computer Corp.

Tandem's licensing efforts are part of a long-term strategy to position its highly scalable middleware, merchant databases and object technology in the Windows NT space.

NCR unveils data mart strategy. See page 47.

Compaq ProLiant servers offer speed, ease of use

By April Jacobs

Compaq Computer Corp. today plans to introduce the ProLiant 2500 server with some innovative features that make it easier for users to service and manage the speedy machines.

For example, the departmental and remote-office server has thumbscrews for tool-free access to its modular interior.

The ProLiant 2500, a successor to the ProLiant 1500, is based on Intel Corp.'s Pentium Pro chip but will feature a Compaq-designed motherboard that gives users more fail-safe features, said Jerry Sheridan, an analyst at Dataquest in San Jose, Calif.

ProLiant 2500



CACHE: 256K bytes integrated Level 2

PROCESSOR: Upgradable to dual 200-MHz Pentium Pro

MEMORY: Expandable to 1G byte

Performance boost

Sheridan cited attributes such as hot-pluggable drives, support for redundant network interface cards and a backup power module for the Pentium Pro processors.

"These are features that are innovative and above and beyond what the Intel motherboard can supply," he said.

Sheridan said the Pentium Pro chip could give users a 75% performance boost over the Pentium chip.

Pricing for Compaq's ProLiant 2500 will start at $6,000.

It will compete with offerings such as Hewlett-Packard Co.'s NetServer LH Pro, IBM's PC Server 520 and Digital Equipment Corp.'s Prioris HX.

Kevin Grinnell, a LAN administrator at the Boston office of Fish & Richardson, a nationwide law firm, said he recently ordered several Compaq ProLiant 5000 servers but likes the serviceability features being incorporated into the 2500 model.

"Every component that is redundant is for the better because it's important to be able to replace them without taking the server down," Grinnell said.

Grinnell, who supports roughly 400 users on Compaq servers, said his only complaint about Compaq so far is availability.

"They'll come out with great new servers and components, and my vendors won't even be able to give me dates [for shipment]," he said.

Compaq is targeting the ProLiant 2500 server at departmental and remote-office environments, including file, print, Internet, intranet and database applications, according to an official at the company.

Cisco buy eases configuration

By Patrick Dryden

To help simplify network capacity planning, Cisco Systems, Inc. last week scooped up NetSys Technologies, Inc. for stock worth about $79 million.

NetSys, a 50-employee Palo Alto, Calif.-based vendor, has carved out a niche by supplying software that helps managers of large networks configure all their Cisco routers, monitor performance and optimize traffic flow.

Product plan

But there is more to the picture. Cisco also confirmed last week that it will complete NetSys projects that extend those capabilities to rival routers and help a new class of users manage wide-area networks.

Before the end of the year, Cisco officials also plan to deliver modules for NetSys Connectivity and Performance Tools that will support routers from Bay Networks, Inc.

That will help users who use a mix of routers to tune their networks and forecast capacity needs, said David Quan, product manager of Cisco's enterprise network management group.

Also due this year is a version of the NetSys tools to help a broader variety of managers become more proactive in safeguarding the integrity of their networks, Quan said.

By automating analysis functions and relying solely on a World Wide Web interface, the tool should appeal to managers of smaller networks where expertise in routers and Unix consoles may be lacking, Quan said.

Tool automates server system setup

Compaq is taking several steps to ease the setup and management of its servers throughout large organizations.

This week, SmartStart — the automated software installation configuration tool included with each server — will become more open.

Compaq previously distributed operating systems and a few applications on CDs with each server, which users could buy so SmartStart would install and configure them to assure proper operation.

But Version 3.0 lets vendors integrate their products with SmartStart.

That means more application options and upgrades sooner for Compaq users.

Users can deal directly with vendors instead waiting for Compaq to negotiate distribution and cut new software into its quarterly SmartStart releases.

They can order SQL Server from Sybase, Inc., for example, and let SmartStart automatically install and configure it for the desired type of access.

Compaq users this week can begin monitoring faults on servers and desktop systems from their Unix-based enterprise network management platforms.

Users can deal directly with vendors instead of having to wait for Compaq to negotiate distribution and cut new software into its quarterly SmartStart releases.

First up is support for Version 3.31 of OpenView Network Node Manager from Hewlett-Packard. For less than $5,000, managers can get a ported version of Compaq's Insight Manager, which is a systems management tool that detects hardware problems and warns managers.

Early next year, Compaq expects to support Version 4.1 of HP's Network Node Manager and AIX versions of IBM's NetView and Spectrum from Cabletron Systems, Inc.

Similar integration efforts will link Insight Manager to various management tools from BMC Software, Inc., Boole & Babbage, Inc., Novell, Inc. and Seagate Software.

"This direction definitely helps us," said Andy Von Der Bruegge, computer information specialist at the Missouri Department of Health in Jefferson City.

"Ideally, we would like to watch our Compaq servers from a single management console," he said. "That will be easier and save us some desk space."

— Patrick Dryden

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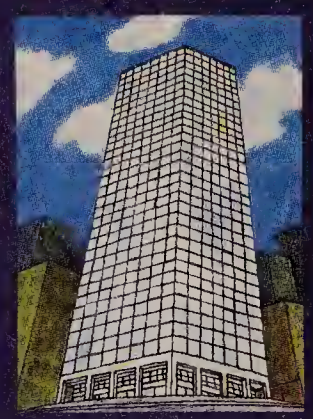
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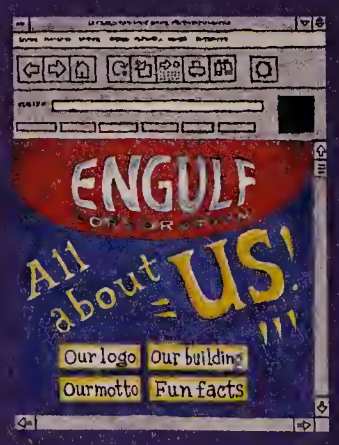
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Online loans for online auto buyers

By Thomas Hoffman
NEW YORK

Car buyers who are tired of haggling with pushy, polyester-clad salesmen can now find relief over the Internet, thanks to AutoConnect (autoconnect.net), a service from Automatic Data Processing, Inc. (ADP).

Several Internet sites already sell cars, but AutoConnect has an extensive network of more than 4,000 auto dealerships and will be among the first to offer car loan approvals via the Internet.

AutoConnect, which is driven by ADP's Dealer Services unit in Hoffman Estates, Ill., also provides hot links to more than 500 manufacturers, parts and service sites and online auto industry publications. Consumers with World Wide Web browsers can do side-by-side comparisons of fuel efficiency and other characteristics of various models.

Money talks

As part of the service, NationsBank Corp. has teamed with Credit Management Solutions, Inc. to develop an Internet-based auto financing system. Consumers will apply for car loans through dealer Web sites, while AutoConnect acts as a wide-area network for passing loan documents among consumers, dealers and credit bureaus.

The system, which will begin pilot testing with 100 dealers by year's end, is expected to reduce from days to minutes the amount of time it takes for consumers to get car loan approvals, said John P. Abadie, president of NationsBank's Dealer Financial Services Group in Greensboro, N.C.

Chase Auto Finance in Garden City, N.Y., a unit of Chase Manhattan Corp., is already testing online car financing in a pilot program that it started earlier this year with six dealers.


THOMAS HOFFMAN

Jaguar's George Frame: *'We're still babes in the woods' with Internet-based car marketing*

Chase doesn't offer direct online financing to consumers. Instead, customers apply for financing through dealers, which electronically transmit loan applications back and forth with lenders, said James Brew, president of Chase Auto Finance.

For security reasons, the Chase program uses IBM's proprietary Global Network as a gateway to the Internet, Brew said.

"We've invested a lot in making [security] a nonissue," he said. Brew estimated that Chase and IBM have anted-up less than $5 million between the two parties to develop the system.

Chase handles about 400 online contracts per month. Brew said he expects the service will process 15% to 20% of the bank's 100,000 monthly applications within a year. That could potentially represent $120 million to $240 million in monthly online revenue for Chase, which charges dealers $700 per month for the service.

But banks and consumers remain wary of Internet commerce, said Laura Stuart, president of Stuart Research, a banking consultancy in Waltham, Mass. "If people are uncomfortable about giving their credit-card numbers over the 'net for incidental purchases, it would take another leap of faith to do a $15,000 car loan," Stuart said.

That kind of skepticism hasn't deterred Jaguar Cars, Inc., which joined AutoConnect to offer an Internet-based used-car sales service. The service makes sense for Jaguar because half of the cars it sells are used, said George Frame, vice president of finance and administration at the North American headquarters in Mahwah, N.J.

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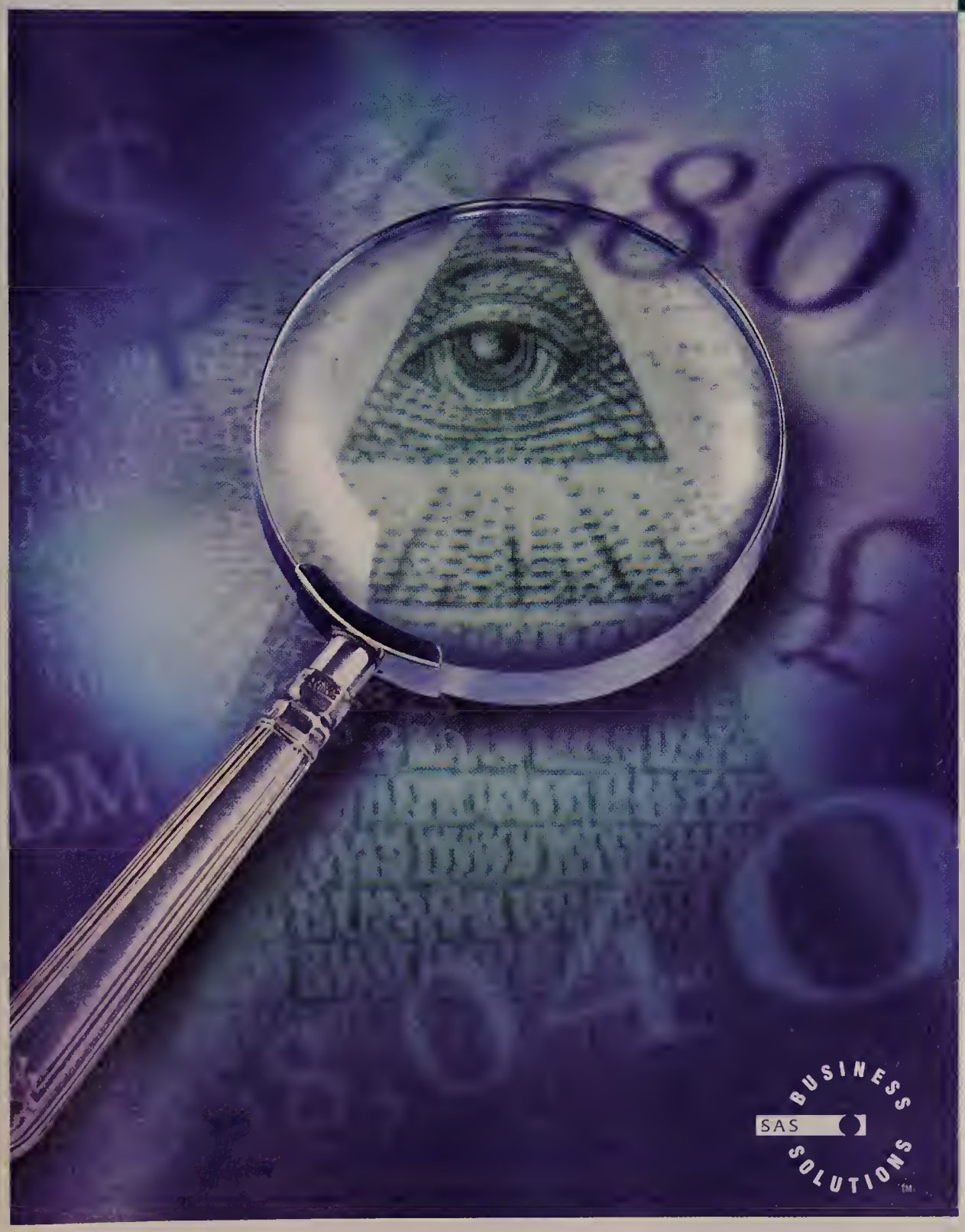
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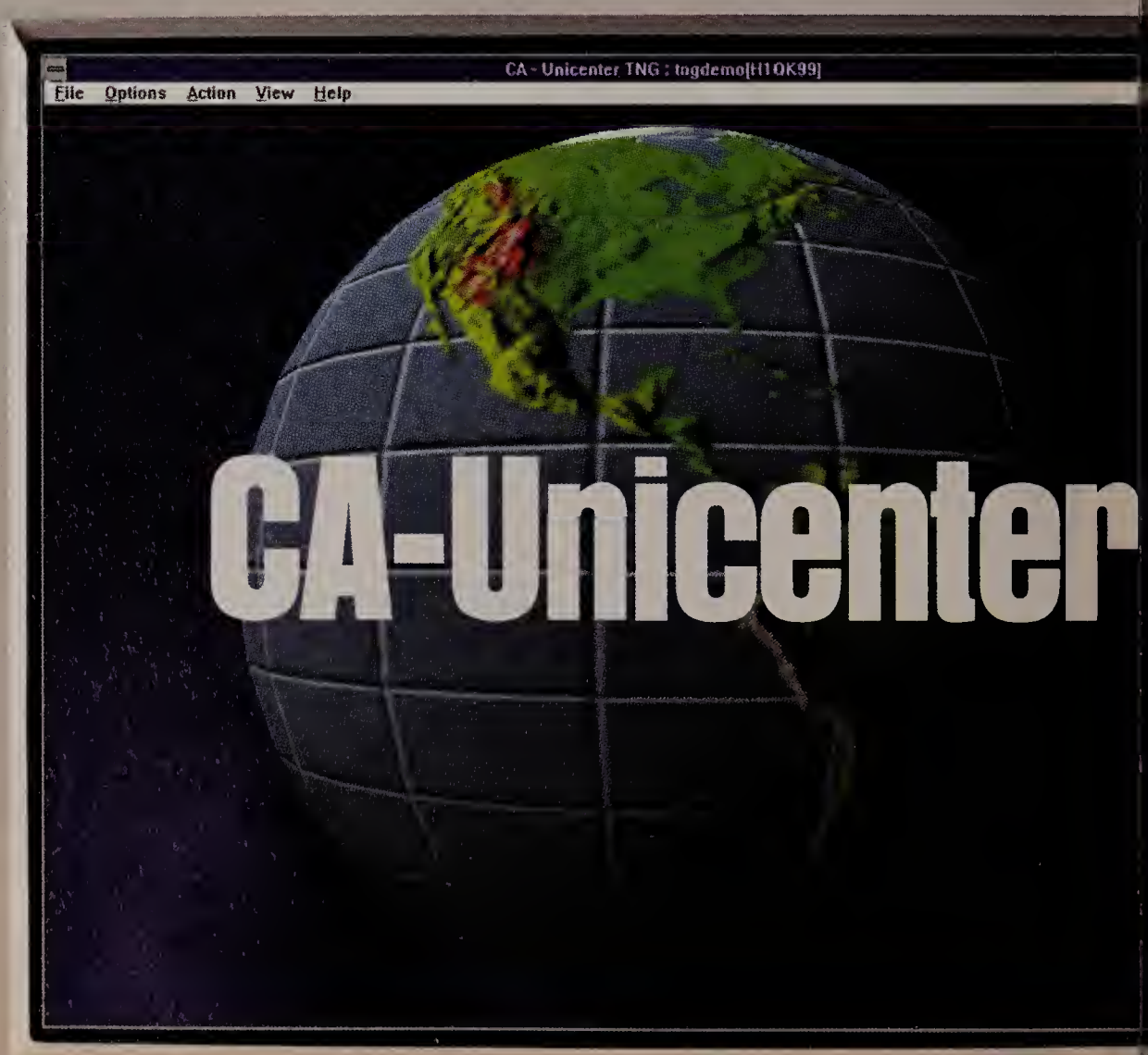
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Java gets Windows flavoring

By Frank Hayes

Microsoft Corp. last week unveiled a software tool kit that will let developers mix and match Java with Windows 95 or Windows NT applications.

The Java software development kit is Microsoft's version of the Java development kit for 32-bit Windows that has been available for months from Sun Microsystems, Inc., creator of the Java language. But the Microsoft version lets Java programs connect with Microsoft's ActiveX components and Windows applications.

Java was designed to run programs without change on practically any computer that includes the Java virtual machine. But that portability comes at a price: Java applications run slower than software compiled specifically for Windows.

One user said he liked having the option to link Java with conventional Windows desktop applications. "It's pretty exciting to see so much more potential there," said Randy Kolb, a senior microcomputer analyst at Stone Container Corp., a paper manufacturing company in Chicago.

Gourmet Java

New in Microsoft's Java software development kit

- ActiveX components
- TrueType fonts
- Unicode character sets
- Third-party tool support

But another user questioned whether linking Java and Windows applications on a desktop is a good idea. "It makes sense to run Java over a slow link like the Internet," said Bill Sheehan, a senior technical support specialist at Stone and Webster Engineering Corp. in Boston. But when native Windows applications can load quickly from a hard disk or LAN, the advantages of Java are harder to find, he said.

Because of Microsoft's support for the Java development kit, many more users are likely to install it than Sun's version. Microsoft's kit can be downloaded free from the company's World Wide Web site (www.microsoft.com/java) and will be bundled with development tools from Borland International, Inc., Powersoft Corp. and Metrowerks Corp., Microsoft officials said.

Microsoft's Java development kit includes the Java development system and the Java virtual machine, which allows Java applications to run on a user's desktop instead of within a Web browser. But unlike Sun's version, Microsoft's release includes support for the TrueType fonts used by Windows and the Unicode system for foreign-language character sets.

CheckPoint Software helps Java developers get through corporate firewalls. See page 60.

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It's taxing to untangle Web commerce laws

By Randy Weston

The tax man wants a cut of the $24 billion electronic commerce business, but individual states are creating a tangled mess of confusing and conflicting tax laws.

"Rules that apply to other commerce areas just don't apply to the Internet," said Allan H. Cohen, a partner at Arthur Andersen & Co., a tax consultancy in Boston.

"We're dealing with 21st century technology and 1960s tax policy," he said. "With a business world changing every two to three months, how do you deal with a tax policy that changes glacially?"

Currently, 45 states and the District of Columbia collect sales taxes on goods and services. With electronic sales projected by the U.S. Commerce Department to grow to $600 billion in the next few years, states are grappling with ways to tax World Wide Web-based transactions.

Different rules

Texas has gone to great lengths to define the different segments of electronic commerce. The state collects sales taxes on everything from downloading software to services such as creating Web pages.

California doesn't impose a sales tax on downloaded software unless the purchase includes a backup copy sent by mail a few weeks later. But the state's legislature has created a commission to investigate applying sales tax codes to the 'net.

Each state defines electronic commerce differently, so it is more and more difficult for vendors and buyers to interpret the laws.

For example, Massachusetts and New York tax "the sale of electronic services" and use exactly the same wording to define the term. But New York interprets the law as meaning electronic transmission of information is taxable; Massachusetts says it isn't.

A company's tax obligation is determined by how much "nexus" or presence it has in a state, said Karl Freiden, a senior manager at Arthur Andersen. The definition of what constitutes a presence was hashed out during the past decade, in the heyday of catalog sales.

Courts have ruled that simply delivering a catalog by mail or displaying products on a Web page doesn't mean it has a presence in a state.

But setting up a warehouse or office could mean it has an obligation, and most tax attorneys agree that maintaining a server or a mirrored server in a state is a significant presence.

Taxing situation

Statistics from a survey on taxation of Internet commerce:

67%	*Believe state and local tax laws that govern electronic commerce are ambiguous*
51%	*Say the ambiguous tax laws are inhibiting their entrance into electronic sales*
50%	*Say they aren't very or not at all familiar with the electronic commerce tax laws*
25%	*Are very or extremely familiar with electronic commerce tax laws*
20%	*Don't know if their company's products sold over the Internet are subject to taxation*

BASE: FINANCIAL EXECUTIVES FROM 291 COMPANIES

Source: KPMG Peat Marwick

Cybersource Corp. in San Jose, Calif., runs an online software distribution service called Software.net that lets users download the latest version of Eudora mail or other software.

It runs only one server, and the company chose to put it in California because the state's tax laws allow it to escape the tax collection requirement. But marketing manager Rob Lewis said the company knows the window of opportunity is closing.

"We know that's going to change in the future," Lewis said. "We're only in one state right now, but we're looking at mirroring in another state. We're looking at Oregon because it has no sales taxes."

Tough to enforce

Although a vendor is required to collect taxes only in states where it has a physical presence, the U.S. Supreme Court has ruled that buyers are still responsible for paying applicable taxes in their state.

The law is rarely enforced in such situations because of problems tracking the transactions — until now.

"Government sees this as an opportunity to put some teeth behind its tax codes because now there is a mechanism to trace this kind of commerce," said Brad Haigis, a product manager at Cambridge, Mass.-based Open Market, Inc.

Open Market develops software for Internet sales and provides transaction services for companies that do business on the Internet.

"Whatever state you live in, you will get banged with the tax. But it's tough to monitor, so they are going to put the burden back on the merchant — and you better have collected it," Haigis said.

How we can simplify the process

If the scope of your company's Internet commerce goes well beyond selling virtual cupcakes to neighbors, you may want to invest in one of several software programs and services meant to track the ever-changing state and local tax codes that govern electronic commerce.

"There's about 6,000 tax jurisdictions between the U.S. and Canada," said Karl Frieden, a senior manager for state and local tax issues at tax consultancy Arthur Andersen. "You may want to get into some kind of software solution if you are talking about 15 or 20 states or more where you have a tax compliance responsibility."

With $24 billion in annual online sales at stake, state and local governments are slapping together tax codes to ensure that they get their fair share. But the result is a tangled web of conflicting and confusing tax codes that require full-time attention to ensure compliance.

> "Software programs are only as good as the law, and the law is not always clear."
>
> – Karl Frieden, Arthur Andersen

But without the staff or money to take on the task themselves, many companies are turning to tax accounting software vendors, such as Taxware International, Inc. in Salem, Mass., to handle the legwork for them.

When Open Market launched its Internet commerce business in 1994, it called on Taxware rather than hire its own army of accountants.

Taxware "has about 60 accountants that focus on researching and keeping up-to-date the different tax laws," said Brad Haigis, a product manager at Open Market.

"Every month we receive, and our customers receive, updated rules and product codes that we simply plug in to the software," Haigis said.

Frieden said most of the available accounting software works the same way.

But not all the work is in the hands of the software vendor.

Set aside some staff

Haigis said companies will have to dedicate staff members to program information about the specific products they sell over the Internet and update the database.

"You often have to do custom modifications," he said. "You'll need to determine two issues: if what you are selling is subject to taxes in the jurisdictions you operate and second, do you have any exemptions or customers that may be exempt."

For example, if a university buys your product, it may be exempt from sales taxes or certain equipment may be exempt if it is sold to a manufacturing firm.

Companies also may need to retain tax attorneys to wade through many of the ambiguous laws that govern taxation of many types of electronic commerce.

"Software programs are only as good as the law, and the law is not always clear," Frieden said.

"What you may be getting is a product tax matrix. What you may not be getting is help figuring out the complexity of the law and whether new types of products are taxable. That programming has to be done separately." — *Randy Weston*

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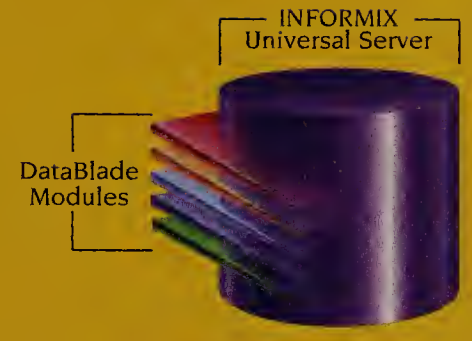
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Computer Industry

Apple is back in black — for now

But company may see red, not green, come Christmastime

By Lisa Picarille

Although Apple Computer, Inc. last week posted a profit for the first time in a year, financial analysts said the good news was mostly the result of cost cutting, not increases in sales or market share, both of which are needed to sustain long-term growth.

And a close analysis of the earnings report shows that the fourth-quarter picture wasn't as rosy as Apple's portrayal.

The Cupertino, Calif., computer maker showed a profit of $25 million on revenue of $2.3 billion for its fourth fiscal quarter, which ended Sept. 27. Analysts had expected Apple to lose about $37 million.

But unit sales were down 26% from last year's fourth quarter and up 11% over the prior quarter.

"Performance in the critical areas of [increasing] market share and maintaining a customer base were not demonstrated," said Eugene Glazer, an analyst at Dean Witter Reynolds, an investment banking firm in New York.

What was demonstrated, according to Glazer, is that Apple's cost-cutting measures — layoffs, sell-offs of manufacturing plants and reduction of operating expenses — all helped the company turn a profit.

Apple said it expects to return to "sustainable profitability" in the second fiscal quarter of 1997 but added that 1997 revenue will be flat. The company may not return to industry growth rates, estimated to be 17% to 20%, until 1998.

Based on Apple's statements, analysts said they expect the next quarter, which is typically Apple's best of the year because of the Christmas buying frenzy, to bring no profit or a slight loss.

Last week, Apple played up the facts that PowerBook sales increased from 8% to 15% of the product mix, gross margins increased by 2%, and there were several "big sales wins."

Bad start

Apple posted losses in its first three quarters of 1996 that totaled more than $839 million.

But sources said that Apple sold the portables, which were mostly models that didn't sell well because of repair and recall problems, to large corporate customers at bargain-basement prices.

Because those machines had already been written off as a loss, any revenue was considered a 100% profit for Apple. That boosted the company's overall margins.

Marco Landi, Apple's chief operating officer, confirmed that the majority of machines sold to those large accounts were portable machines. He didn't comment on price.

"In reality, there was a loss," said Charles Wolf, an analyst at CS First Boston, an investment banking firm in New York. "If those two percentage points had not been there [from the laptop sales], the company would have posted a loss of 18 cents a share, or a $22 million loss."

Visionary needed to stop Bay erosion

By Bob Wallace

Industry to Bay Networks, Inc.: Hire a networking visionary.

That was the message last week after CEO Andy Ludwick resigned, and the company's earnings dropped.

Users and analysts agreed that Ludwick did many good things as CEO, such as presiding over the 1994 merger of hub vendor SynOptics Communications, Inc. and router power Wellfleet Communications, Inc.

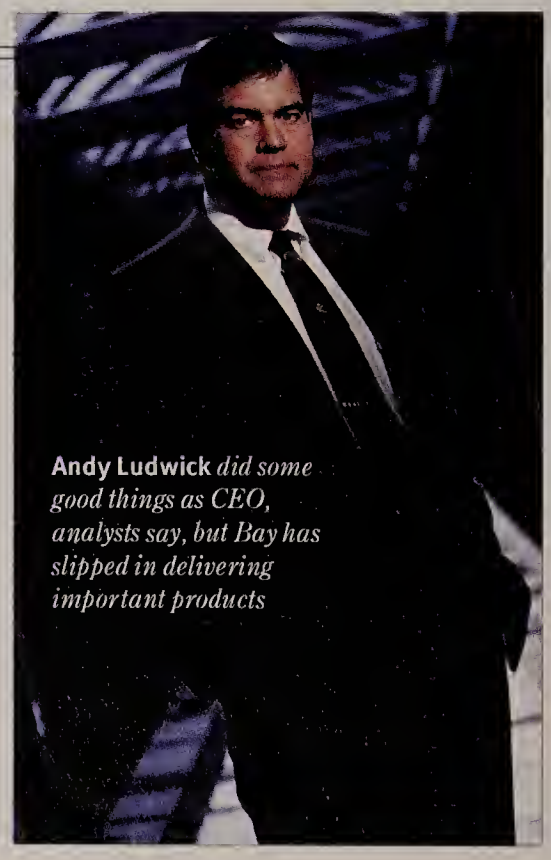
But Bay was several years late in delivering switching for its high-end System 5000 hub and would have been in even worse shape if it hadn't acquired switching specialist Centillion Networks, Inc.

"What Bay Networks needs is a CEO with a technology vision, not just a businessman or financial expert," said Brett Frankenberger, telecommunications engineer at Union Pacific Railroad Co. in Omaha, a loyal customer with roughly $3 million invested in Bay equipment. Bay must continue aggressive development on its router line concurrent with its switching efforts, he said.

Analysts agreed.

This turbulence "can be limited to a short-term problem if Bay hires a real networking visionary who can bring the company's strategy together," said Skip MacAskill, a senior research analyst at Gartner Group, Inc., a consulting and research firm in Stamford, Conn. "But Bay has to also restructure upper management to facilitate the necessary changes."

Paul Severino, Bay's chairman, will serve as CEO until a permanent successor is hired. Ludwick will serve as a member of the board of trustees.



Andy Ludwick *did some good things as CEO, analysts say, but Bay has slipped in delivering important products*

Surprising loss

Although Ludwick's resignation was long anticipated, the plunge in Bay's earnings for the last quarter surprised many.

Bay's revenue for the quarter ended Sept. 30 was $522 million, up 14.2% from last year. But earnings were $5.6 million, down from the $62 million posted for the same quarter in 1995. The $5.6 million includes a one-time write-down of $42.6 million for Bay's recent acquisition of LanCity, Inc.

"Wow. This seems to be an oddity since we've seen extreme growth for its competitors," Frankenberger said of rivals Cisco Systems, Inc., 3Com Corp. and Cabletron Systems, Inc. "But going after a CEO with business skills to turn around those numbers would only work in the short term. A strong technology vision will help Bay go the distance."

"The numbers will start to improve if Bay hires the right person for the CEO slot," MacAskill said.

Intel rides Pentium sales to strong fiscal quarter

By April Jacobs

Riding strong sales of its Pentium chip, Intel Corp. posted third-quarter revenue of $5.14 billion, a 23% increase over last year. Profits hit $1.31 billion, up from about $1 billion last year.

Jim Barlage, an analyst at Smith Barney Shearson, Inc. in New York, said Intel's motherboard business is somewhat flat, with an estimated 2 million units shipped.

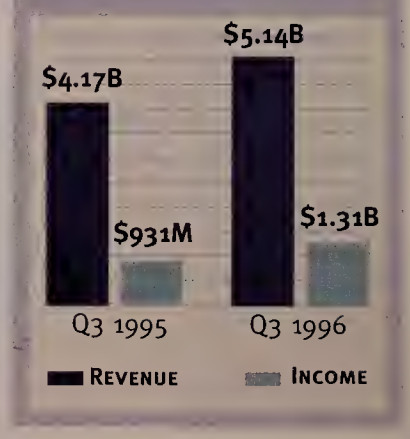
But Pentium chip units grew to about 18 million, up from 15 million in the second quarter of this year.

In other earnings reports:

- **NCR Corp.** showed a third-quarter operating income of $29 million, compared with a loss of $196 million last year. Total revenue declined from $2 billion to $1.6 billion, a decrease of 18%.
- **Borland International, Inc.** announced it will lay off 125 workers, or 15% of its workforce, as part of a cost-cutting effort. The company said it expects a $36 million loss for its third quarter.
- **Sun Microsystems, Inc.** posted a 25% increase in revenue for its third quarter, from $1.49 billion last year to $1.86 billion. Sun had profits of $123.4 million, up 46% over last year.
- **Compaq Computer Corp.** reported revenue of $4.48 billion, up 25% over last year. Profits were $350 million, an increase of 43% over last year.

Intel improves

Intel's third-quarter 1996 revenue marks the first time the company's quarterly revenue surpassed $5 billion



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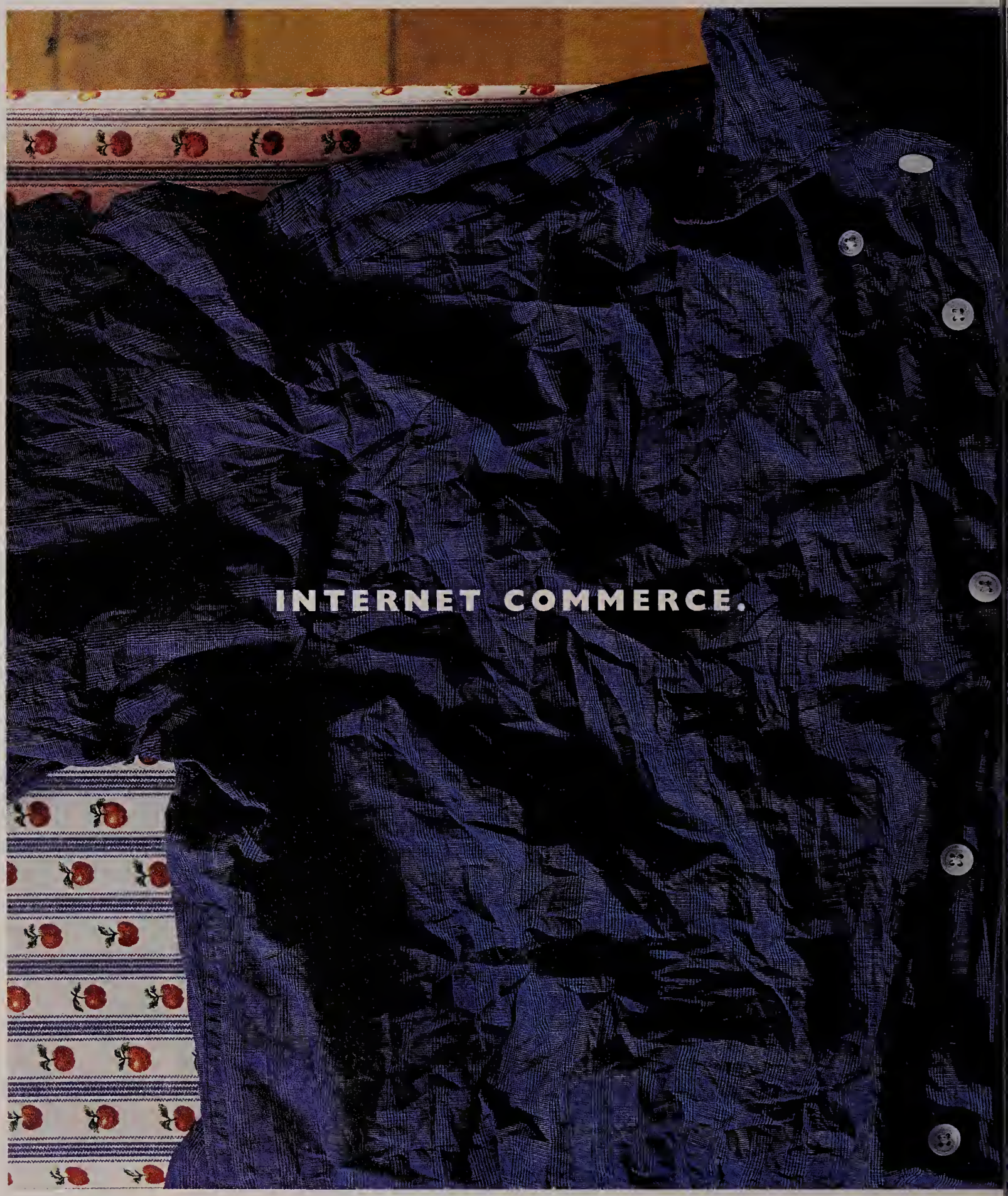
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Opinion

Software pipeline

The latest Internet-inspired revolution is lurking around the corner, ready to restructure the way IS purchases and tracks software.

That revolution is electronic software sales.

The big players expect electronic distribution to comprise a third of their revenues by 1998, according to a recent survey of 310 PC software makers by the "Softletter" newsletter. As much as 10% of all packaged software could be flowing through electronic storefronts by next year, according to International Data Corp.

Whether that will save users significant money is unclear. But I'm hearing a lot of hopeful talk these days about providing better tools to help IS professionals manage their fleets of desktop systems and address cost-of-ownership issues.



The beauty of virtual software is that all you get is the intellectual property. No extra stuff to store, dispose of or damage. No need for manuals — who reads them anyway? — or klunky boxes littering our already overflowing offices.

The resulting vendor savings theoretically will be passed along to users, who should see their software costs drop by at least 10%.

So far, much of what vendors such as Microsoft and McAfee Associates do online revolves around shareware, demos and software patches. But watch for a shift to full-blown applications and upgrades in the next 12 months.

With less physical product to move, software purveyors should be forced to focus more heavily on customer service. This could range from providing electronic license distribution or corporate content management to customized packaging and pricing.

Vendors and resellers soon will be pushing corporate sites to buy electronically. Savvy IS departments should be thinking now about how best to take advantage of this chance to purchase, deploy and license software in one fell swoop.

A little planning could go a long way toward making sure that sellers come up with processes and products sympathetic to IS concerns and needs. It could also better position IS to go to management with a software budget that ends up saving the company money. Now that would be revolutionary.

Patricia Keefe, *News editor*
Internet: *patricia_keefe@cw.com*



Letters to the editor

ActiveX, not Java, applets are unsafe

It appears some IS departments have taken the approach that Java applets are unsafe until they are proved otherwise ["Corporate IS frets about Java security, frowns on applet use," CW, Sept. 9].

I am not certain that I entirely agree with this position. Sun appears to have made conscious efforts to make Java applets safe. For example, a Java applet can access only the Internet host from which it was downloaded. Also, it cannot perform file I/O or execute local programs on the client machine.

Unlike Java applets, Microsoft ActiveX applets can perform local file I/O on the client machine and can run local programs. A malicious ActiveX applet could possibly take confidential business data and ship it to a competitor. Alternatively, it might simply destroy the data on the user's workstation.

If I were making decisions about browsers and Internet viruses, ActiveX and Microsoft Explorer are what I would be concerned about.

Satish Rajan
Arlington, Va.
rsatish@pobox.com

Family-focused dads face bias, too

WOMEN IN INFORMATION SYSTEMS
Ms. MIS

As always, Laura DiDio's Ms. MIS column ["MIS moms: Don't ask, don't tell," CW, Aug. 19] was both interesting and alarming.

First, if any IS executive, male or female, thinks someone is going to stick around for five years, they are nutso! Heck, I have seen IS executives with shorter tenures than most contractors.

Second, what about us papas who are between a rock and a hard place concerning staying up all night (in my case several nights) with a sick daughter because Mom is overfatigued from taking sick duty on the day shift?

You know what my employers have told me when I have taken too many sick days to care for my wife and children? That I have an attitude problem!

My point is that perceptions about being family-focused are not just a prejudice against working moms.

I have been in IS long enough to have seen all kinds of things, and there are all kinds of good managers.

But beware of the manager of either gender who perceives a power advantage to be used over their workers.

Timothy Cahill
Sacramento, Calif.

Group highlights security issues

Richard Finkelstein's Viewpoint column ["Feeling more secure about intranets," CW, Aug. 19] hit the mark about the security holes inherent in distributed environments. Security was much easier to implement and manage in the age of centralized computing. However, I take issue with his assertion that the security problems are "so huge that no one wants to think about them."

I'd like to draw your readership's attention to the Network Applications Consortium (www.netapps.org), a group of end-user organizations that have put considerable effort into highlighting the issues of security and single sign-on in a distributed environment. These customers — on their own nickel — have put together a series of white papers that clearly outline the issues, and they offer a forum for end users to share ideas about possible solutions.

Chip Overstreet
Vice president,
Marketing and business development
Open Horizon, Inc.
San Francisco, Calif.
www.openhorizon.com

More letters, *page 44*

■ Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No

4. How many people are employed at this location and in your entire organization, including all of its branches, divisions and subsidiaries? (Select only one per column.)

	1. At this location	2. Entire Organization
A. 20,000 +	❒	❒
B. 10,000 – 19,999	❒	❒
C. 5,000 – 9,999	❒	❒
D. 1,000 – 4,999	❒	❒
E. 500 – 999	❒	❒
F. 100 – 499	❒	❒
G. 50 – 99	❒	❒
H. 20 – 49	❒	❒
J. 10 – 19	❒	❒
K. 1 – 9	❒	❒

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Verbatim

FROM A BULLETIN BY META GROUP, INC. IN STAMFORD, CONN.:

In many organizations, intranets and Web applications are designed, developed, installed and managed by a webmaster who is isolated from the existing IS infrastructure. This model will change as intranets are integrated with traditional IS groups. Three positions will emerge: intranet administrator, Web developer and webmaster.

FROM A REPORT BY TOM PINCINCE, AN ANALYST AT FORRESTER RESEARCH, INC. IN CAMBRIDGE, MASS.:

Remote access users are multiplying like rabbits, and IS organizations are racing to keep up. But the constant hand-holding required to keep [remote] users happy is making IS managers' lives miserable.

With the total price tag of today's remote access equipment spinning out of control, the Internet will get a shot at fixing the problem. Forrester's cost model shows that Internet-based remote access will be as much as 60% less expensive than traditional remote access.

Internet remote access will be in full swing by early 1988, complete with secure tunnels for privacy.

FROM A REPORT BY NORWALK, CONN.-BASED YANKELOVICH PARTNERS, INC. ON ELECTRONIC COMMERCE:

Cyberspace is still a novelty. Unfortunately, sooner or later, the novelty will wear off. When it does, if there is nothing compelling to be found on the Internet, cyberspace will go into a tailspin.

Consumers and marketers embraced cyberspace in 1995 without necessarily questioning why. The time has come for marketers to demonstrate how a return can be made from online investments.

Unless this happens, marketing dollars will be kept where they can be seen and measured for effectiveness.

Disgruntled E-mail worker on rampage

Brian D. Jaffe



E-mail administrator randomly kills workers' LAN access, before terminating his own.

Employees at the Piscataway, N.J., headquarters of Clavin, Inc. are in shock after an early-morning rampage by the electronic-mail administrator at the 500-employee firm yesterday.

In what is believed to be the first incident of its kind, the disgruntled E-mail administrator randomly deleted the network identification codes of his co-workers. Before he could be stopped, the suspect turned his skills against himself by removing high-level "supervisor" capabilities from his network account.

"I've never seen such electronic carnage," said CEO Jason Miller, who added that his business has ground to a halt.

Clifford Newman, the sole E-mail administrator at this location, showed up for work Monday morning and discovered that the company's E-mail system had failed over the weekend. As he tried to determine the cause of the problem, the backlog of undelivered mail grew. As his troubleshooting progressed, he was plagued by calls and beeper messages from fellow E-mail managers at various remote company locations and from users complaining about undelivered E-mail.

Co-workers and neighbors said Newman was a polite, quiet worker who usually kept to himself and had few friends. He dealt with routine requests for password resets in a courteous manner and never flinched when users repeatedly asked the same questions about sending Internet mail.

But Newman seemed beleaguered by the ceaseless nature of E-mail traffic, colleagues said. Some said he would become visibly irritated at the sight of junk E-mail, oversized file attachments and lengthy distribution lists. Furthermore, Newman privately raged when he discovered users who sent every message marked "urgent" with a "receipt requested."

Following the incident, company managers said they will study a series of memos Newman had written over the course of several years. Sources inside the company said the memos include requests for more disk space, faster processors, more time for database maintenance, additional data communications facilities and redundant resources to reduce the risk of an E-mail shutdown.

Unconfirmed reports from within the company indicated that the failure Newman encountered yesterday was because of a "beaconing condition" on the company's Token Ring LAN, which blocked E-mail traffic for almost 48 hours.

During this time, the E-mail software continued to write entries on the error log for every undelivered piece of mail. The error log apparently grew at an alarming rate and filled all available disk space, which caused the mail server to fail.

The beaconing condition has been traced to the network interface card in the workstation that monitors and manages the company's E-mail network. The workstation was set up to alert Newman by pager at the slightest indication of an E-mail snafu, a capability Newman had requested.

A company spokesman said a full investigation is under way. He said the company will review its policies regarding E-mail usage, network management and employee counseling.

Jaffe is grateful to E-mail administrators everywhere whose tireless and underappreciated efforts allow him to receive messages at 103727.2235@compuserve.com.

Sales automation: Re-engineering gone awry

Peter A. Perera



A rigid sales automation system won't help the salesperson adapt to customer needs.

There's an alarming trend sweeping the field of sales management and automation. The trend is to create a highly structured sales methodology that guides salespeople step-by-step through the selling process. Then you implement a sales automation system that forces this structure on salespeople.

The movement has spawned its share of buzzwords, such as opportunity management, virtual selling, sales funnels and sales pipelines. But it isn't working. Many companies report that they can't get their salespeople to adopt *any* methodology because none reflects the real world of selling.

At first glance, a structured sales process seems like a great move for sales managers who want to boost efficiency and effectiveness. IS managers and sales automation software vendors have embraced methodology mania, too. The software requires salespeople to capture gobs of data that describes where their customers are in a sales process.

Out of earshot of the methodology mavens, salespeople say they don't like the company trying to micromanage their territories or force-fit customers into buzzword categories. "Why should I care if this week my contact is an 'economic buyer,' and next week he is something else, if that doesn't support the sales process as it really happens?" Another common comment: "My company implemented a structured selling methodology over a year ago. But nobody uses it. It added no value."

The methodologies fail to recognize that buyers want salespeople to accommodate how they buy — and companies don't all buy in exactly the same way. Yet salespeople are being trained and equipped to drag customers through a rigid, automated sequence of selling steps. That limits a creative salesperson's ability to exploit unexpected opportunities and navigate the twists and turns of each customer's buying approach.

Should we just give up trying to automate a process too amorphous to automate? The answer lies in an unexpected realm: U.S. Air Force fighter pilots. An Air Force study found that the best fighter pilots completed the so-called OODA Loop — a cycle of observation, orientation, decision and action — faster than the enemy.

Similarly, the key to winning sales is to complete the OODA Loop with buyers faster than the competition. Here's a simplified example of how it works:

Observation: The customer wants five widgets with certain specifications by tomorrow. Orientation: The salesperson checks product availability on his notebook computer and finds only four widgets in stock with those specifications. Decision: He offers the four in-stock widgets, plus a fifth one that exceeds the specifications. Action: He closes the deal with the customer.

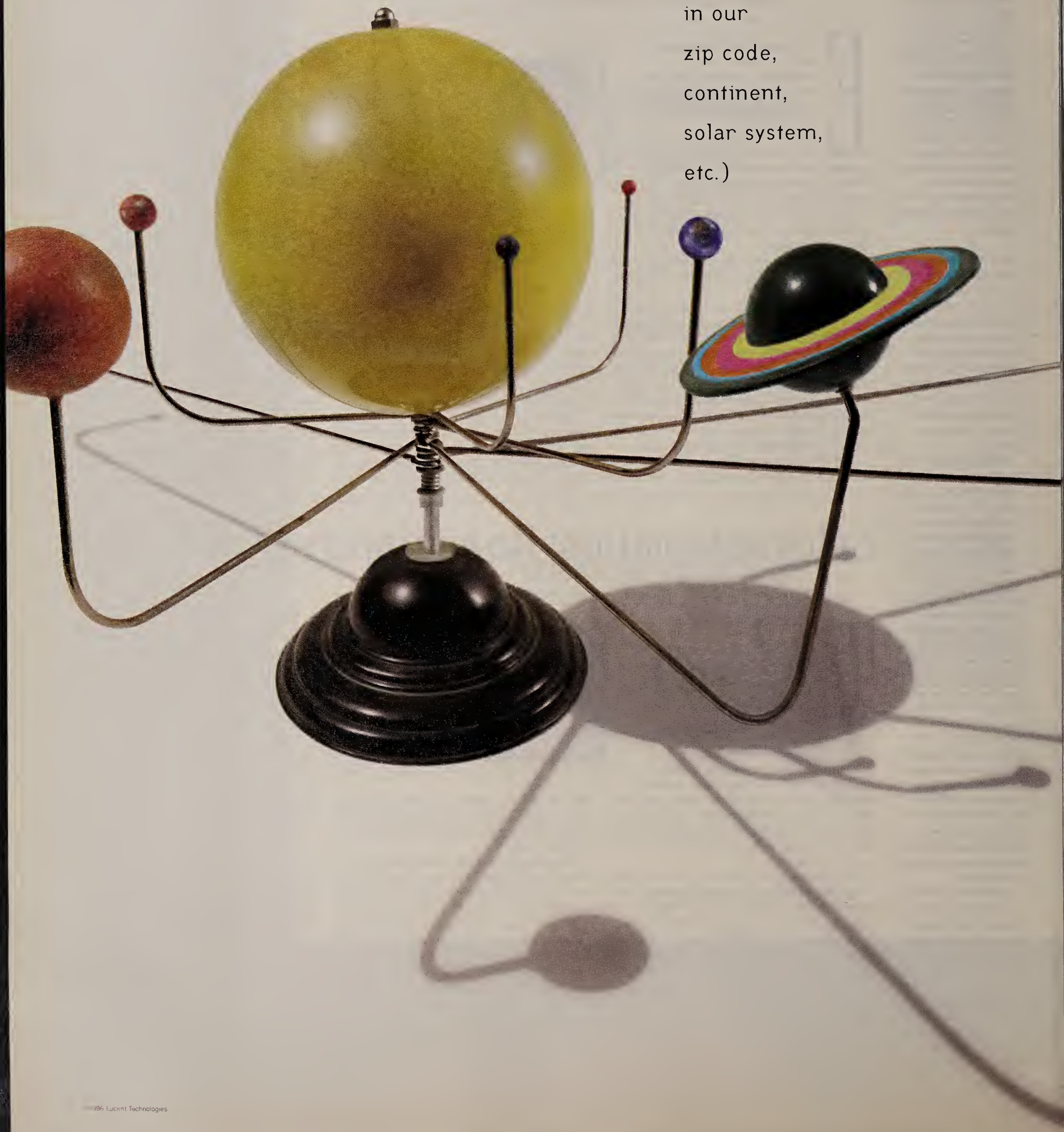
At the same time, the salesperson may be going through the OODA Loop with other customers in completely different situations. The salesperson needs a knowledge base to help size up the customer and real-time product information. He doesn't need to interrogate the customer for data to satisfy a predefined selling process.

The best sales methodology isn't a methodology at all. It's a set of skills and an electronic tool kit to facilitate the customer's buying process. Like fighter pilots who use high-tech gear to fly through the OODA Loop, salespeople are more effective with an automation system that helps them quickly adapt to each customer interaction.

Perera is founder of The Perera Group in Andover, Mass. The consultancy specializes in sales and marketing systems development.

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What you never thought possible.™

Doing the Digital/Microsoft tango

Memo to Digital's Robert Palmer:

General Electric's Jack Welch likes to say that if you aren't going to be No. 1 or No. 2 in a market, you might as well do something else. If Digital acted on this advice today, it would be bad news for your 60,000 employees.

Consider *Computerworld*'s latest mind share research, which measures who IS managers consider to be their primary supplier in various product categories. The data shows that Digital ranks seventh in PCs, sixth in workstations, fourth in servers and fourth in Web servers. No wonder profits have been hard to come by.

This familiar systems company problem is particularly acute with Digital. IBM still dominates the data center. Hewlett-Packard has its remarkable share in printers. Sun Microsystems is No. 1 in workstations. Even NCR has its traditional edge in banking and retail systems.

Digital's position isn't due to a lack of vision. During your tenure, Digital has actually made some smart, even prescient, moves: advocacy of 64-bit computing, early alignment with Microsoft and Windows NT, ultralight notebooks and, with its AltaVista, a real contribution to the Internet.

However, success requires more than just strategy. The PC business is proving intolerably brutal; an aggressive Intel has minimized Alpha's performance edge; and payback on your Internet investments is still a long way off. Even your support for NT is no longer unique.

What should you do? From an IS perspective, there are already plenty of PC, server and Internet technology vendors. You can make a unique contribution by living up to the promise of Digital's relationship with Microsoft. But you need to be a real technology partner, not just another service provider.

For example, Microsoft's Wolfpack project team plans to build very high-performance NT systems through extensive use of clustering, an area in which it has virtually no experience. With Digital's deep knowledge of clustering and storage subsystems and extensive services capability, there's no better NT systems opportunity. You must make the most of it, even if it turns out to be an Intel-driven world. All the tough cost-cutting you have done will mean little unless Digital can establish its technology in Microsoft-centric arenas.

You were right not to replace your top computer executive, Enrico Pesatori. You now have a flatter organization that puts you much closer to your critical operating units. The task of making the Microsoft partnership work is now clearly yours. As Microsoft becomes the enterprise software vendor of choice, there are many in the IS community who hope you succeed.

David Moschella



Digital should bet the farm on its relationship with Microsoft.

Moschella is senior vice president of research at Computerworld, Inc. His Internet address is david_moschella@cw.com

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The Newspaper of Information Systems Management
October 23, 1995, Vol. 29, No. 43, 164 Pages, $6/Copy, $48/Year

COMPUTERWORLD

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3Com hub users say they'd rather fight than switch

Win 95: *Better read the manual!*

Tuxedo dresses down

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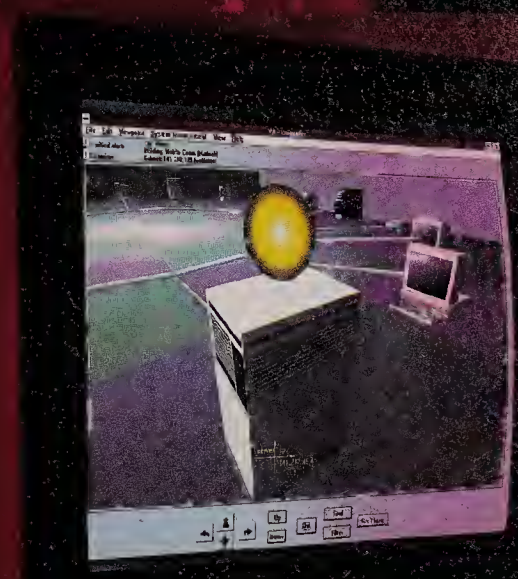
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Letters to the editor

AOL meltdown signals need for resource boost

I agree with your editorial "America Offline" [CW, Aug. 12] contending that business users should have a backup to the service provided by America Online or any online service.

But this isn't a realistic alternative for many home users, who constitute a large part of America Online's customer base.

I use America Online to run a creative writing seminar and couldn't hold my session on the day America Online was down. Although disappointed, the members of my group survived unscathed. Still, I am bothered by this outage for two reasons.

First, it is of no use to offer complaints or suggestions to America Online because the service merely responds with a form letter, generally saying the problem is likely due to something at the user's end.

Second, I wonder if America Online could better steer its resources toward the provision of service and less toward the recruitment of new customers. I read several computer magazines each month, and with every issue comes the obligatory free disk or CD for America Online. I can't help but wonder if the expense of those disks could be saved and if the corresponding money saved could be applied to better hardware and technical support — thus avoiding a repeat of this outage problem.

John K. Offerdahl
Charlotte, N.C.
mesotron@aol.com

Online banking: Useful and impressive or too expensive?

I enjoyed M. Arthur Gillis' recent column about online banking ["Opening soon: Microsoft National Bank," CW, Aug. 26].

I just wanted to share my recent experiences with online banking at Wells Fargo Bank.

I am not affiliated with Wells Fargo in any way, except that I bank there.

Wells Fargo offers the most impressive, useful features for online banking via the Internet that I have seen from any California bank.

The online bill-payment service allows me to pay bills quickly, at less cost, and I have never had any problems with payments reaching their destination.

As for Microsoft National Bank: When that happens, I might consider keeping my cash under the mattress.

David Hutt
Santa Barbara, Calif.



ERIC YANG

I read with interest M. Arthur Gillis' column, "Opening soon: Microsoft National Bank." While I agree with what he says, I feel he omitted another important reason why consumers have stayed away from online and other electronic banking systems: the cost.

The banks seem to insist on charging ridiculous fees for using electronic transactions systems.

For example, I recently made a withdrawal at an automated teller machine belonging to a bank other than my own.

I was charged $1 by the bank that owned the ATM because I didn't use its card and $1.50 by my bank for using another bank's ATM.

Being charged $2.50 to perform a transaction that probably cost each bank less than a penny to perform is asinine.

The most expensive way for the bank and the most inconvenient way for both the bank and me to perform transactions — via standard checks or interacting with a teller — are still free. It makes no sense.

Eddie Sheffield Jr.
Internet programmer
Ashburn, Va.

IS should wake up to focus group technique

Jerrold M. Grochow's opinion piece ["When the whole world is watching you," CW, Sept. 2] correctly identified the lack of mass-market skills in information systems.

But the article didn't mention the focus group interview, probably the most important technique used by qualitative market researchers today and almost unknown to IS. How many of us know how to select an effective moderator? Or how to manage the recruitment process? How many of us are comfortable with the emotions and chaos that are part of every successful group?

These are questions that advertising professionals and other marketers have been asking and answering for more than 20 years, but they are barely on our radar today. Such groups are destined to become crucial for every Web design and development effort, but the psychological or sociological training necessary to pull them off is sorely lacking in our departments.

Bo Warburton
Senior member of the technical staff
Computer Sciences Corp.
Las Vegas

Jerrold Grochow replies: *Mr. Warburton makes a good point. Not that I am necessarily a fan of the focus group (after all, most of the commercials on TV today were aired only after focus group reviews), but there are many additional skills that need to become part of the standard repertoire of the IS organization — or else it may find itself supplanted by some other group as the supplier of Web-enabled systems.*

Don't be a Microdupe

I was shocked by the David Coursey commentary, "Hey, Microsoft: Can you spare a few execs?" [CW, Aug. 26]. The idea that Coursey believes Microsoft is trying to help Apple with its recent announcement is laughable. Had Coursey investigated beyond the ramblings of Microsoft, he would have seen the real truth.

Apple developers today are developing with OpenDoc. Does Microsoft want to help Apple developers with OpenDoc? Of course not. This is all about ActiveX/Distributed Component Object Model. Sure, Microsoft will build Macintosh Internet software, and it would be happy to pay Apple developers to help — because these products will use ActiveX. Microsoft's goal is to push its not-quite-objects product line.

Karen D. Boucher
Market analyst
The Standish Group International, Inc.
Dennis, Mass.

'net fees aren't answer

In your page 1 article [" 'net crunch escalating," CW, Sept. 16], higher usage-based fees are proposed as one solution to Internet gridlock. Raising the price of admission to the 'net would be counterproductive. As a consumer, I don't relish the thought of paying by the hour when I download the next Netscape upgrade over my 28.8K bit/sec. dial-up. We need to be looking for ways to increase the system's efficiency and capacity — not looking for ways to restrict its use. If the Internet is to become a tool for the distribution of products and services, as well as ideas, we must continue to upgrade its infrastructure.

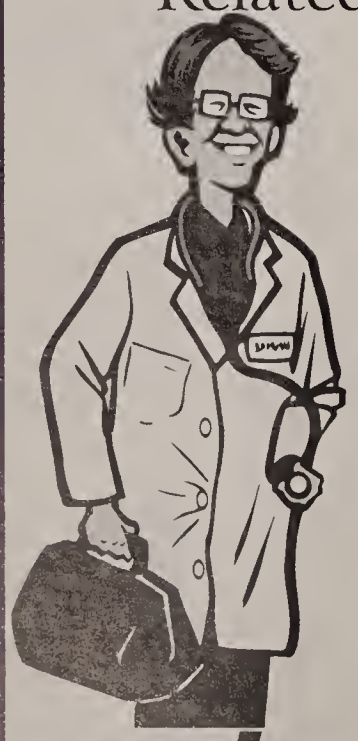
Mark Freese
New York

No vulgarity, please

Just a simple objection to using the word "hell" in a headline on page 6 of the Aug. 12 issue of *Computerworld* ["HP CEO: Hell no, Unix won't go"]. That word is vulgar when used in this context. Your magazine is normally very focused on covering the information industry, and the presentation is normally unobtrusive. I hope this approach will continue with few exceptions.

Dave Brown
Carpentersville, Ill.

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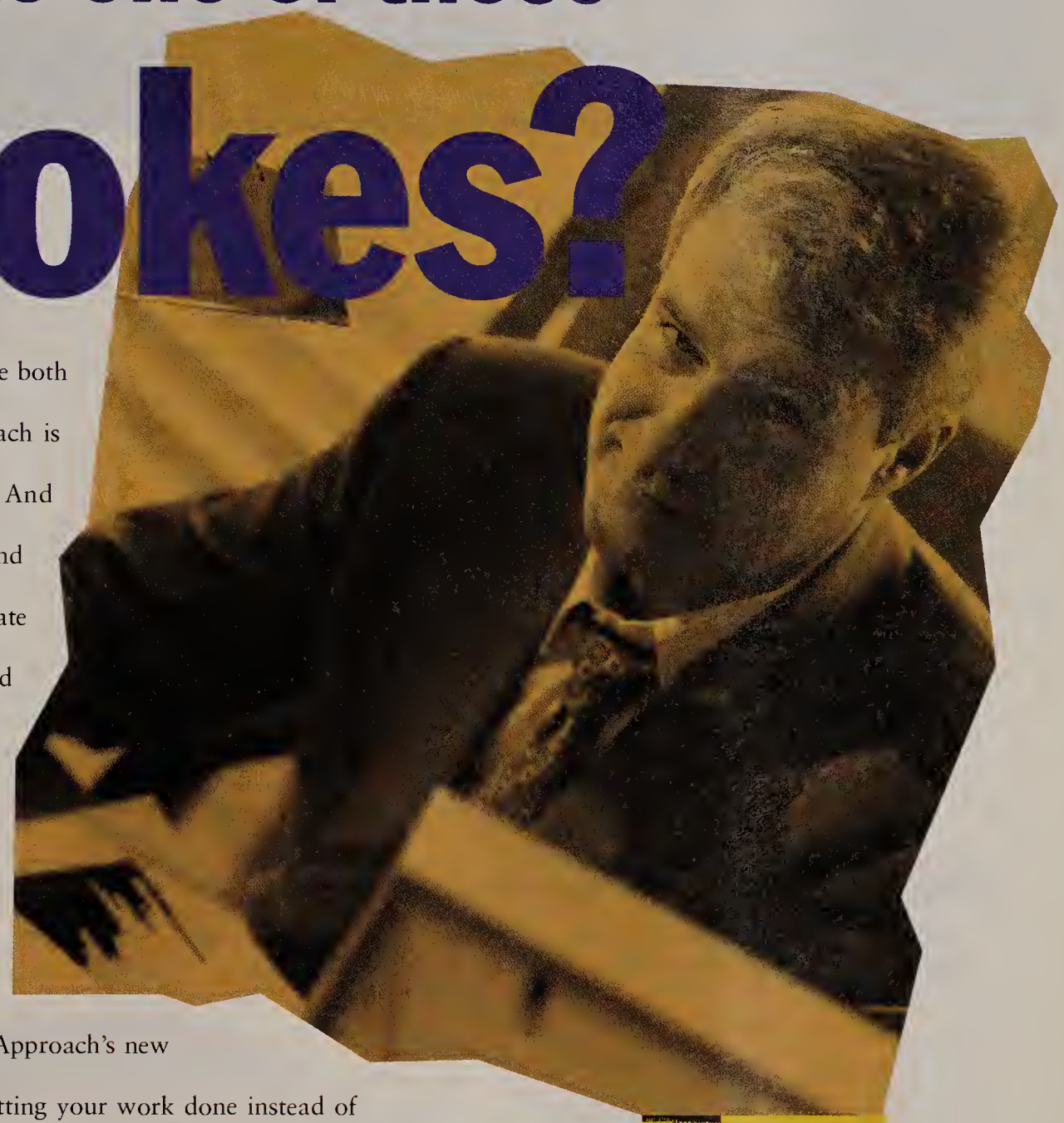
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Small vendors grab limelight at Unix Expo Plus, **49**

Servers & PCs

Down the road

Key features of NCR's Teradata multimedia option, which will be available late next year:

- Captures, stores, retrieves and manipulates images, video and audio
- Content analysis that uses multimedia objects and traditional data types
- Mapping, or geocoding, capability for things such as gathering demographics
- Time-series data analysis for the financial and retail industries

NCR enhances Teradata support

By Jaikumar Vijayan

NCR Corp. is porting its Teradata relational database management system to Microsoft Corp.'s Windows NT. And although the move won't benefit users right away, it could pay dividends down the road.

The Windows NT announcement is the highlight of a series of enhancements the Dayton, Ohio, company is making to its venerable relational database management system. The new features are intended to boost performance, cross-platform interoperability and Internet connectivity.

At its annual global customer conference held in San Diego this month, the company also announced a new data mart strategy and the addition of multimedia and Internet enhancements to Teradata.

But the user benefits from some of those announcements are unlikely to be felt for some time. For one thing, porting Teradata to NT for symmetrical multiprocessing systems won't happen until the fourth quarter of 1997. Similarly, the multimedia options also are unlikely to be available until late next year.

Windows NT also remains largely untested in the data center. Questions about scalability and reliability mean that users are

NCR, *page 49*

Digital FX32

What is it?

An end-user translation utility that allows 32-bit WIndows applications to run unchanged on Alpha platforms

How fast is it?

X86 applications on Alpha match Pentium Pro performance

When and where is it available?

Late October at www.service.digital.com/fx32

How much is it?

It's free

Wider app support for Alpha

By Jaikumar Vijayan

After nearly a year of testing, Digital Equipment Corp. has finally announced software that lets users run 32-bit Windows applications unchanged on its Alpha hardware platform.

The FX32 translation software gives Alpha users quick access to a much wider variety of 32-bit Windows applications. Prior to

Digital, *page 49*

Laptop power woes drain mobile users

Batteries can't keep pace with feature-laden laptops

By Mindy Blodgett

Although laptops have made giant strides in the past couple of years, with faster chips and snazzier multimedia technology, advancements in power and battery life have lagged, according to industry analysts.

Users complain that batteries, which used to yield three or more hours of life, are now drained at little more than an hour with the powerful new laptops.

> "I'd like to see a single battery last for an entire transcontinental flight."
>
> *— Doug Moran, CRSS Constructors*

"The battery gets blamed, but any improvement in battery life is immediately wiped out by notebook designers packing more and more features into the computer," said Brian Barnett, vice president of battery industry studies at Arthur D. Little, Inc. in Cambridge, Mass. "There is a continuous tension of manufacturers wanting the latest and greatest speed draining the battery."

According to industry observers, the situation isn't likely to improve substantially in the coming months. But battery makers are working on the problem.

Lithium ion one answer

Lithium ion batteries, which are lighter and have longer life than the nickel cadmium or nickel metal hydride batteries that vendors traditionally have used, "are on the way to becoming standard," said Phillip Redman, an analyst at The Yankee Group in Boston. But lithium ion batteries also are more expensive than NiCad and are in short supply, Redman said (see chart).

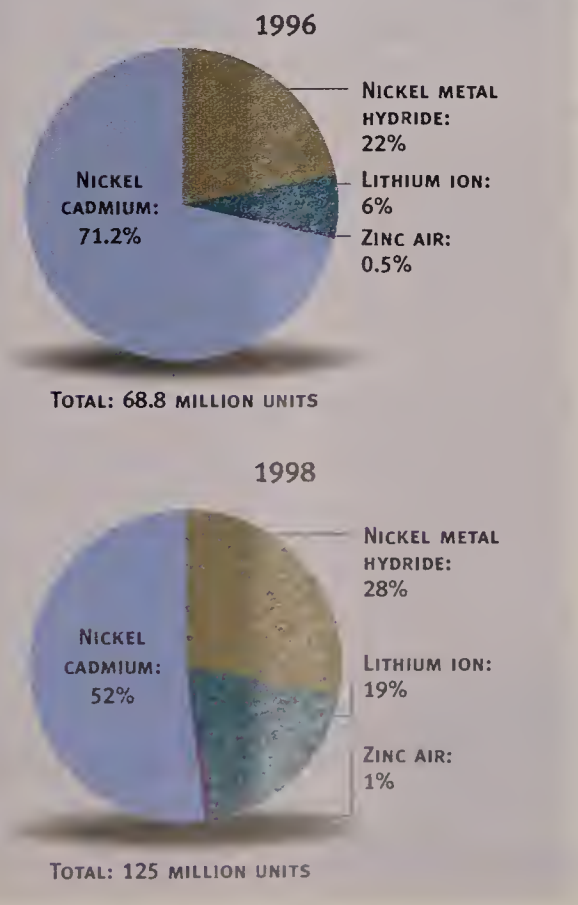
A technology that offers hope for suffering road warriors is lithium polymer, according to Barnett. Expected to hit the market next year, lithium polymer offers more power benefits than commonly used batteries, "but it is not yet clear if there will be significant improvements in runtime," he said.

Another development took shape last week at the Power 96 battery and power conference in Santa Clara, Calif. Intel Corp. announced it was working with several other vendors, including Duracell, Toshiba Battery Co. and Energizer Power Systems, on specifications for smart batteries for portable devices. Smart batteries will offer better power-management systems — such as relaying more accurate runtime status — than is available now.

In the meantime, one user has a simple wish. "I'd like to see a single battery last on a multimedia notebook for an entire transcontinental flight," said Doug Moran, information systems analyst at CRSS Constructors, Inc. in Denver.

They keep going and going and going

Projected installed base of batteries in portable computers, handheld computers and cellular telephones:



Source: The Yankee Group, Boston

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October 21, 1996

White Paper

IDC
INTERNATIONAL DATA CORPORATION

Cutting Costs

with Integrated Network Management Tools



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The Value Proposi for Inte

In writing this White Paper, International Data Corp. had two goals: 1) to detail the potential increases in management efficiency and productivity as well as applications availability when organizations invest in general network and systems management tools; and 2) to determine if firms could achieve a superior return on investment (ROI) by using integrated network and systems management tools that work across multiple platforms.

At the outset we should define what we mean by integrated management. Simply put, a truly integrated management solution is one that is open, cross-platform and cross-discipline.

On a more technical level, integrated management solutions permit management applications to run transparently across different operating environments, enable sharing of data across management disciplines, and allow point solutions to be integrated where needed.

To conduct this study on integrated network and systems management, IDC surveyed 20 IS managers of global companies with more than 20,000 employees and nearly $5 billion in revenues. All the companies had extensive and heterogeneous networks. On average the managers had responsibility for 4,800 desktops and 380 servers spread over 74 sites. More than 90% had Unix servers, nearly 20% had midrange servers and 77% had mainframes.

The average IS team at these companies had the equivalent of 147 full-time employees paid an average burdened salary of $70,000, augmented by 10 to 20 unpaid "gurus." The average IS personnel budget was $10 million.

International Data Corp. concludes that integration of management tools is a significant multiplier of productivity.

On average, the companies had invested over $2 million in management software tools and were using nine tools. Some used point solutions (different management tools that do not share information or manage multiple environments); others used integrated solutions.

While the companies that invested wisely in multiple point management tools reduced the average annual cost of administration, those that had invested in integrated management solutions achieved a much greater savings in administration and availability costs.

IDC concludes that integration of management tools is a significant multiplier of management productivity. Traditional management solutions address problems such as performance, capacity planning, data archiving, job scheduling, problem management and help desk individually. Attempts to use these products in a consistent way across multiple systems and networks usually result in overlaps in responsibility and the unnecessary duplication of work.

In this White Paper, IDC challenges current attitudes towards the value (or lack of it)

tion
grated Management

of integrated network management products. IDC has developed a model for measuring the ROI of management solutions, and, through interviews with these IS managers, found that there is much ROI to measure.

This White Paper is divided into four sections. The first section provides an overview of the distributed enterprise and why integrated network management products are so important in such environments. The second section describes the areas in which IDC found the highest ROI in management products.

The third section discusses how management products can improve efficiency of deployment, user administration and ongoing network operations, providing figures for savings in each area. It also looks at the problems organizations face when implementing management solutions. The final section details the benefits organizations can gain by deploying an integrated management solution.

Also included in this White Paper are case studies of four companies that have implemented integrated network management solutions. ✦

About the Authors of this White Paper

This White Paper was written under the direction of Randy Perry, Director of Communications Consulting for IDC, and includes contributions from Perry as well as three other IDC analysts: Richard L. Villars, Director, Network Architectures and Management; Dr. R. Paul Mason, Program Director, System Infrastructure Software; and Brian Burba, Research Analyst, Distributed Management Solutions.

Perry is responsible for managing custom studies, assisting clients in evaluating opportunities in data networking and telecommunications, and developing market and business strategies. Villars, who assumed responsibility for network software research in 1992, leads IDC's efforts in evaluating market opportunities in connectivity software, as well as advanced network services such as PC-to-host access, directory services and other network middleware technologies. Mason directs the System Infrastructure Software segment of IDC's Software Research Program, which is responsible for forecasts of industry segments, as well as analysis of vendor strategies, customer requirements and product positioning for system management software, middleware and system utilities. He concentrates on areas such as system management of heterogeneous systems; client/server management; and emerging enterprise management frameworks. Burba is responsible for research in IDC's lead program on distributed management products for distributed LANs, desktops, servers and applications. His program covers worldwide use of SNMP management platforms, hub/router management packages and PC/server management suites.

IDC, based in Framingham, Mass., uses over 350 analysts in more than 40 countries to deliver insightful market data and strategic guidance to IT vendors and the IS community. The company, which has studied the global high technology industry for more than 25 years, can be reached on the Internet at www.idcresearch.com.

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Why Distributed Enterprises Need *Integrated* Management

By using an integrated management solution, administrators can perform tasks across multiple system and network platforms as well as share information between management applications. Integration also allows an administrator to manage heterogeneous systems as if they were a single entity, and allows managers to correlate diagnostic information from many different sources.

Integrated management solutions deliver significantly better ROI (see Figure 1), particularly in tasks where duplication of effort reduces the utility of a management tool, such as deployment of software and network operations.

Integrated solutions also allow an organization to reuse existing management implementations, rather than constantly rebuilding the same functions. This makes it easier for users to add capabilities.

No matter how technically elegant a management software package, it cannot overcome poor implementation or inconsistent management policies. The implementation process poses an administrative challenge in the proper installation and configuration of management software and in defining the organizational operations surrounding a new solution. Companies that deploy management software without investing in the implementation process will gain fewer product benefits — not only initially but over the life of the solution.

The appearance of new technologies such as PCs, Unix and client/server applications and LANs are usually considered

FIGURE 1

Management Software ROI Analysis

	EFFICIENCY*	PRODUCTIVITY*	AVAILABILITY*	NPV**	INVESTMENT	PAYBACK
POINT SOLUTION	$12,800	$20,400	$49,847	$271,700	$77,900	342 days
INTEGRATED SOLUTION	$13,600	$104,200	$101,600	$854,500	$69,400	116 days

*annual average savings per 100 users
**NPV calculated over a five year period assuming a 6% annual return

Source: International Data Corp.

the driving forces behind an organization's adoption of distributed systems and client/server computing. In reality, adoption of these environments owes more to the re-ordering and flattening of the traditional business organization.

In 1990, the dispersion of decision-making authority and P&L responsibility across increasingly independent business units was nothing more than an interesting idea for most firms. But three factors — the worldwide recession of the early 1990s, a wave of mergers and acquisitions in many industries, and increased global competition — forced many companies to rethink their approach to doing business.

CHANGING INFO NEEDS

These continuing attempts of organizations to re-invent themselves have altered the information needs of individuals across the enterprise in four ways:

1) Departments and project teams need access to traditionally centralized information, i.e., about budgets and human resources, for the purposes of planning.

2) Historically independent departments, such as R&D, manufacturing, marketing and sales, must now share information and expertise, in order for them to speed time-to-market for new products.

3) Central executives require tools to compare the results of independent business units in order to rapidly resolve problems.

4) Increasingly intricate organizations also need to deliver information to users not only at large central sites but also at remote offices and on the road. Many leading-edge companies have added another layer of complexity by including independent suppliers and large customers in the groups that need to share information.

These changes bring many advantages, but not without a major impact on the IS organization. As demand rises for computerized solutions to new business challenges, as organizational structures are torn down and rebuilt, and as workers are reassigned to virtual organizations, the pressure on IS to manage rapidly changing hardware, software and network products and services grows ever stronger.

In response to changing business conditions, the IT industry itself underwent a radical transformation in the early 1990s. The resulting profound changes in hardware and software development, pricing and integration in turn put a strain on the ability of IS administrators to deploy and update new hardware and software solu-

As demand rises for computerized solutions to new business challenges, the pressure on IS to manage rapidly changing hardware, software and network products and services grows ever stronger.

IDC's ROI Methodology

With its methodology for modeling costs associated with managing enterprise networks, IDC can evaluate the ROI for implementations of systems and network management software.

Both before and after management software was implemented, IDC gathered data on either the time required to support the network or downtime. Time values were multiplied by the burdened salary (salary + 50% for benefits and overhead) to quantify savings. Savings were averaged over five years, calculating an annual 5% increase in salary. The result, given in average $/year per 100 users, can be used by readers to determine the potential impact on their own networks.

The model examines savings in three areas: management efficiency (how many users each IS manager can support); management productivity (how IS managers use their time); and availability (the time a network is fully operational).

The number of users is always growing. But management staff does not have to match the rate of user growth to deliver the same level of support. By decreasing the amount of time and travel managers need to support users, management software enhances the ability to launch applications and solve problems centrally; in fact, it increases the ability to centrally manage by an average of 60%. Firms deploying point solutions generated annual travel cost savings of $13,620 per 100 users.

By decreasing the time required to execute deployment, administration and operations functions, integrated management software tools allowed companies to achieve time reductions up to 70%, for potential average savings of over $104,000 per 100 users.

After implementing integrated management software, respondents reduced downtime by 4-7 hours per month. The percentage of users affected by each downtime dropped from 28% to 19%.

Higher availability yielded two benefits. Users were able to work 1.3 hours more per month. The second benefit was a direct contribution of revenues to the business. Those 1.3 hours of uptime in companies where the average revenue per employee is $210,000 will generate an annual average of $101,559 per 100 users in regained revenues.

For its analysis model, IDC used the payback and net present value (NPV) methods. The NPV method calculates value in today's dollars for 5-year ROI. For integrated management tools, IDC took initial costs in software, set-up and integration and added 15% annual maintenance and training costs to tally an initial investment per 100 users of $69,422.

Average annual cost savings for efficiency, productivity and availability totaled $219,359. IDC accounted for the opportunity costs of not having put the initial sum in another investment yielding 6% annually. This calculation yields a net present value of $854,518 for 100 users or over $8,500 per user, on an investment of under $700 per user.

On average, firms with point solutions increased management productivity by 10.4%. Those with 20% to 50% of their tools integrated increased productivity by 13.6%. But those with 50% to 100% integration increased management productivity by 32.5%.

tions; to administer users and access to corporate resources; and to maintain reliable operation of interconnected systems, networks and applications.

In 1992, IDC coined the term "dis-integration" to describe the trend among computer makers to move away from integrated manufacturing and turn to outside vendors for components.

However, this trend was not new; it had been observed back in 1984, when the IBM PC appeared. In short time, the desktop PC became a commodity product made up of whatever components were most cost-effective at the time of manufacture.

This meant that ostensibly identical machines manufactured in separate production runs might contain different components. It also meant that even if a single order of PCs was identical when delivered, they might not stay that way once components failed and were replaced (particularly since modern PC design makes the adding of components easy — often by someone unauthorized by IS).

Dis-integration is now being seen at the software level. Most PC makers no longer provide both the hardware and the operating system. And on servers, some of the software infrastructure, such as DBMSs and middleware, is now supplied by independent software vendors (ISVs).

Dis-integration even applies to business applications. Instead of managing their organizations' multiple business processes with monolithic application suites, customers are trying to integrate best-of-breed software components from different vendors.

In 1992, IDC coined the term "dis-integration" to describe the trend of computer makers to move away from integrated manufacturing and turn to outside vendors for components.

TRACKING PROBLEM

For many organizations, the result of all this dis-integration is an IS environment that is highly heterogeneous at the component, device and application levels. The mere tracking and updating of these assets across multiple products has become an administrative burden for IS managers. Diagnosing problems is another nightmare altogether.

The trend is now being seen in software: on servers, where some of the software infrastructure is supplied by ISVs, and even in business applications.

The dis-integration phenomenon compounds the challenges of management in a complex client/server environment, which is made even more complex by hard-to-configure PCs as well as network elements such as network interface cards, switches, bridges and routers. In addition, application software on the client desktop must be developed in different versions to support the many variations of desktop PCs and to account for the different roles of each user.

For many organizations, the result of all this dis-integration is an IS environment that is highly heterogeneous at the component, device and application levels.

Software Developer Finds the Quick Fix It Needs

The Network Management Group, based in Mt. Laurel, N.J., supports a network of nearly 500 workstations for a top provider of data processing software to the financial services industry. The network of workstations is used by internal application developers, remote developers as well as partners from other companies who work with the internal development team.



Because the Network Management Group (NMG) is so large and still growing, any solutions that it deploys must be scalable as well as flexible in terms of their range of features, user interfaces, and use of APIs, which must be open. Full integration with other tools to form a management suite is a criteria when it comes to purchasing software, because NMG does not want to add another tool or revision release.

As a result, when the company was evaluating management software, it chose the offering from Tivoli Systems, not only for the product's flexibility and open API design, but for its object-oriented orientation.

NMG had always used the standard tools that came with its server and network devices, but now relies on management suites for its production environment. This environment uses servers for housing development tools and for the testing and configuration management of new software products. The management suite allows NMG to distribute new application software and tools to the developers and ensures that configurations are up-to-date, accurate and consistent.

Before NMG implemented the management tools, proactive problem resolution was impossible. NMG had to wait for problems to arise in the network, then manually look for what caused them. The network was sometimes out for 48 hours, virtually shutting down operations.

This reactive approach required vast efforts to analyze historical data. The scope of such an effort mushroomed as the company grew, until management using manual techniques became virtually impossible. By using an integrated management environment for a "higher level of system management" and for deployment and configuration management, NMG can detect outages quickly and resolve problems before they escalate.

NMG is testing additional management capabilities, such as the integration of multiple alerts from different tools so that a custom report can be shown on one enterprise console. Having an enterprise console in its current production environment allows NMG to define the rules for interpreting management information and reacting to multiple problems. By being able to select the information that is transmitted from various tools, management can ensure that is not overwhelmed by a flood of information and reports.

NMG measures the success of its implementation of a management suite by increased system availability as well as a decrease in user complaints. NMG has also reduced the cost of servicing customer terminals by 35%, which translates into $10 million in savings per year. Because the management tools only cost $3 million to deploy and $500,000 a year to maintain, the company considers the effort an overwhelming success.

The rapid pace of change — not only in applications and systems but corporations as well — affects user administration as well as software deployment. Whenever new systems are added, desktop operating environments are upgraded or corporate reorganizations occur, client/server solutions must be adjusted. In a large organization, this continual instability is a considerable burden.

CHANGES FOR IT

By the early 1990s, it was clear that the traditional IT environment, with its layers of incompatible, duplicate and restrictive systems, networks and applications, was inappropriate for the new business dynamic.

Today, the challenge for all executives, department heads, workgroups and IS administrators is to adopt and manage new technologies and applications that promote the interaction and information sharing called for in the distributed enterprise.

However, to run a distributed enterprise and absorb new technologies, organizations face two hurdles: 1) the hierarchical but incompatible nature of traditional IS systems and networks, whether mainframes, minis or PC LANs; and 2) the narrowness and exclusivity of management and administration tools for diverse systems and networks.

Many organizations have started to address the first issue by adopting standards for desktops (e.g., Netscape Navigator, Windows NT and Pentium processors), networks (e.g., Ethernet and TCP/IP), and servers (e.g., Unix and Oracle). Their efforts are bringing a consistency to IT environments that will ultimately reduce the complexity of development and deployment tasks.

Standardization alone, however, is not enough. Sheer organizational size and complexity can make the task of managing systems, networks and applications impossible. Administrators need a management solution that enables them to deploy, maintain and control IT systems and networks.

But for many administrators, the independent tools they use to manage diverse systems are limited in capabilities. And many organizations, rather than evaluating management solutions, try to maintain a stable IT environment by increasing IT management staff and paying outside consultants and integrators to take on particularly onerous tasks.

IDC hopes that the analysis on the following pages will bring new information to assist IT managers in evaluating management solutions. ✦

Sheer organizational size and complexity can make the task of managing systems, networks and applications impossible. Administrators need a management solution that enables them to deploy, maintain and control IS systems and networks.



Where to Find ROI in Management Products

As networked applications permeate all aspects of doing business, the link between corporate objectives and the IT infrastructure grows tighter and tighter. As a result, insufficient management in distributed computing environments is increasingly a competitive liability.

If corporate managers are to use IT to their competitive advantage, they need assurances of network reliability, system and application availability, and IS staff receptivity to new application deployment — as well as the overall cost-effectiveness of the IT infrastructure.

The billions of dollars being spent on IT infrastructure and support can be reduced to one goal: improving competitiveness of the business. When this basic premise is forgotten or ignored (as is often the case), observers cannot assess the impact of management practices and products. The result: inefficient IS management organizations that function merely as a maintenance and service group, not as a full partner with corporate management.

An IS organization faces three challenges in delivering services for its company:

1. The IS staff must be able to perform regular maintenance and troubleshooting tasks quickly and accurately by automating redundant tasks, simplifying more complex tasks, and by leveraging the intelligence embedded in management tools.

2. Network and system downtime must be minimized through proactive management capabilities and improved management practices, such as installation and upgrade practices that often lead to downtime in the first place.

3. The IS organization must have practices and tools that allow current staff to scale with the business, since staffs cannot expand in lock-step with an IT infrastructure that is growing in size and importance.

IDC uses three metrics to

measure management software products and practices:

1) Efficiency, or the scalability of the IS management staff; in other words, how many network devices, servers or desktops one administrator can manage;

2) Productivity, or the time administrators require to perform activities to maintain and improve network, systems and application performance; and

3) Availability, or how frequently users can access network and computing resources.

EFFICIENCY

Efficiency is determined by how well a management organization can demonstrate economies of scale and scope with its people, practices and tools. Efficiency is what enables the business to grow at a faster rate than the staff required to support the IT infrastructure; it also allows the scope of the IS staff's management responsibilities to expand without the need to add staff.

These economies of scale and scope are critical: If IS departments are unable to achieve them, the result is that corporate managers are restrained in their ability to make business decisions.

In an efficient management organization, a single administrator can manage a greater number of nodes (servers, users, network devices), and perform more management tasks remotely. An administrator who can perform more management tasks remotely needs to travel less. Reductions in travel translate into cost savings for the IS department.

In an efficient management organization, a single administrator can manage a greater number of nodes and perform more management tasks remotely.

IS staff efficiency has other benefits. Most network or system failures are caused not by errant user activity, but by configuration errors perpetrated by IS administrators. By using management tools to help isolate and resolve problems and to offer decision support, an IS staff can "force" consistent management practices. Such practices result in fewer errors in initial configuration or ongoing troubleshooting and fewer faults downstream.

Most network or system failures are caused not by errant user activity but by configuration errors perpetrated by IS administrators.

A management organization also benefits from being proactive. With consistent practices, productive tools and a broader visibility of their environment, IS administrators gain the vantage point to identify potential problems across a number of resources.

The individual administrator in this environment has enough resources to allow more accurate problem identification and resolution, while an administrator with a narrower view may not have enough information to identify a problem until after a device goes down.

Consistent and proactive

Banking on Tools for Net Management

With some 60,000 desktops, it is no wonder that a certain international bank deems its systems mission-critical. If the bank's customer service reps cannot access account data, they cannot do business.

The bank's corporate network supports nearly 1,000 sites worldwide. To manage this network, the IS department relies on basic SNMP management tools, including Netview 6000, SunNet, HP OpenView and a suite of tools from Tivoli Systems. The bank also relies on mainframe and legacy network management tools from MAXM Systems.



These tools are customized so that alerts are integrated into one console. However, the bank awaits the day when suites can manage legacy infrastructure equipment as well as hubs and routers. Currently, when an IDNX node goes out, a non-optimal path is selected, but reoptimization has to be accomplished manually. The IS staff has written code to do this automatically, but they expect features like this one to be standard in the near future.

Previously, to distribute software, IS staffers had to walk diskettes to each desktop. But by using management software, the bank's IS staff has managed to reduce the number of hours required to accomplish the task of software distribution by 50%. Not only are the layouts now consistent from machine to machine, the system creates "lockouts" that prevent users from tinkering with software configurations. Due to this improvement, users can get help sooner and problems are resolved faster.

The ultimate goal is to have the help desk view the same screen as the user. The bank would also like the system to notice when a user is likely to have a problem so that IS can take proactive action, such as notify users that a problem exists and that it is being taken care of.

When choosing vendors, especially for management software, the bank prefers companies with a history. The bank's IT managers like to be able to ask other customers about their experiences with the vendor's product.

Another thing the bank insists on is open APIs. Says the bank's systems manager, "We always have to jerry-rig one thing or another to get it to work with the other tools." They do not want to have to use "intermediary files" to create hooks; they want to interface directly to the data gathered by each management tool. As a result, they have gravitated to open solutions that, as the systems manager notes, "have been exposed to the general public," so that other tool vendors have already invested in integrating their products.

Even though there are management tools for mainframe environments, there is little or no integration (as in a suite) in any sense of the word. Because these tools are not "open," data cannot be used in a "pull and watch" workstation environment. They are used with single-use consoles, but some packages do not come with alerts, and those that do must be customized to parcel out the data and to be used with visual displays or summaries of information.

The bank likes the flexibility and user friendliness that suites offer and expects that in the future they will fully integrate mainframe management features as well.

management practices also enable an IS staff to adopt technology rationally. Instead of trying to solve problems of availability with a quick hardware purchase, IS staffs with full information on the resources supporting a particular service can optimize existing equipment. The IS administrator with a narrow view might quickly conclude that a hardware upgrade is the only solution.

By gaining management efficiency, the IS organization will require fewer new administrators as the business and/or the role of the IS department expands. For instance, help desk administrators will be able to accommodate more users by deploying productive management tools.

At the 20 companies surveyed by IDC, savings in management efficiency accounted for 6% to 15% of their total savings. Average efficiency savings ranged from $12,758 per 100 users in organizations that implemented point management solutions to $13,620 per 100 users for those that deployed an integrated management solution.

PRODUCTIVITY

Why should a CEO care if the IS administrator can set up and configure a new server in four hours versus six hours? Actually, there are several good reasons. Although the cost savings of even these 2-hour efficiency gains are significant, there are competitive gains that are equally compelling.

The IS administrator now has time to proactively optimize the performance of existing servers and isolate potential trouble spots. This will perhaps delay the need to purchase new hardware needed to meet performance metrics and will certainly avoid future fault isolation and troubleshooting tasks. The administrator may also gain the ability to execute new business initiatives more quickly, which may be the most valuable asset of all.

All in all, the productivity gains realized by an IS staff allow businesses to realize three benefits: save costs in

Consistent and proactive management practices enable an IS staff to adopt technology rationally. Instead of solving availability problems with a quick hardware purchase, IS staffs with full information on the resources supporting a particular service can optimize existing equipment.

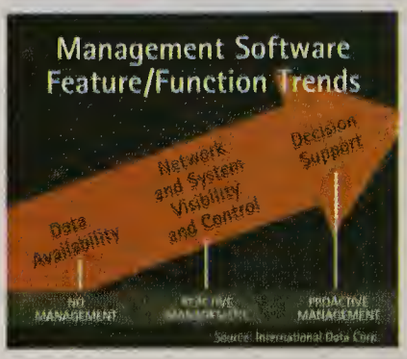
FIGURE 2

Comparison of Savings Due to Improvements in Management Efficiency for Point and Integrated Management Solutions

	POINT SOLUTION	INTEGRATED SOLUTION
Management Labor	$5,881 per 100 users	$8,307 per 100 users
Travel Cost	$6,876 per 100 users	$5,313 per 100 users
Total Savings	$12,758 per 100 users	$13,620 per 100 users

Source: International Data Corp.

FIGURE 3



day-to-day operations, improve return on hardware and software resources, and most importantly, implement new initiatives more rapidly.

The ability of an IS organization to achieve such gains rests on the adoption of best-of-breed management tools that maximize administrator productivity. But the achieving of these gains can be like hitting a moving target, inasmuch as the management tool feature/function set that allows IS administrators to achieve these savings and competitive gains is still evolving.

As vast amounts of development resources and end-user dollars continue to be devoted to network, systems and, now, application instrumentation and data collection, it only follows that the tools to process this mounting management data will soon appear.

Many management products now offer more detailed views of network traffic and server performance. Yet visibility in itself remains a reactive management model.

After all, IS administrators will take management data if no alternative exists, but solution-oriented management tools with a focus on decision support promise far better returns on management software, not to mention network and systems hardware.

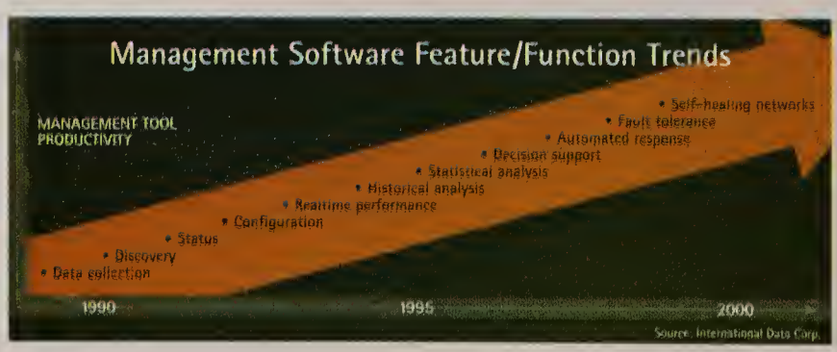
In fact, mere data availability corresponds to little, or more precisely, no management (see Figure 3). Only through substantial investment in time and expertise can customers draw actionable conclusions from raw management data, a process that typically requires costly outside consultants.

Network and systems visibility and control (an accurate characterization of the majority of management solutions presently in use) can only support reactive management. By definition, network topology, alarm/event management and remote configuration capabilities offer reactive management, being oriented toward troubleshooting and regular maintenance functions.

REACTIVE VISIBILITY

Many management products now offer more detailed views of network traffic and server performance. Yet visibility in itself remains a reactive management model. For example, the latest network probe technology, collecting RMON V2-like data, offers views of traffic allocation statistics. IS administrators need analyses of historical network utilization and error trends rather than overwhelming realtime performance statistics.

FIGURE 4



Only through historical analysis can management products offer decision support for hardware deployment, configuration, capacity planning and optimization. The same trends hold true in managing servers and networked applications.

Figure 4 on p. 14 illustrates trends in feature/functions over the next few years and the associated gains in management tool productivity. Although historical and statistical analysis tools are available today, few network administrators actually use such off-the-shelf products due to their immaturity and limited availability.

With the advent of automated management response, truly fault-tolerant IT environments will become possible. All vendors of hardware and software want to maximize the effectiveness of their products by equipping them with the intelligence to self-heal. However, delivery of self-healing environments will require an unprecedented degree of integration between data collection mechanisms, analytical tools and troubleshooting infrastructures, and will depend on the maturation of event correlation engines to coordinate fault analysis and responses.

Customers who adopt these management tools will see even greater gains in IS staff productivity and an exponential gain in cost savings. For the companies surveyed, savings in productivity accounted for 25% to 47% of total savings.

Figure 5 shows that management productivity savings averaged $20,413 per 100 users for organizations implementing point management solutions to $104,180 per 100 users for those implementing an integrated management solution.

All vendors of hardware and software want to maximize the effectiveness of their products by equipping them with the intelligence to self-heal.

Availability of networked resources has become the yardstick by which corporate managers judge the combined assets of IS management personnel, tools and practices.

AVAILABILITY

Availability of networked resources has become the yardstick by which corporate managers judge the combined assets of IS management personnel, tools and practices. As businesses rely more and more on the network infrastructure, the cost of downtime escalates.

Downtime renders some

FIGURE 5

Comparison of Savings Due to Improvements in Management Productivity for Point and Integrated Management Solutions

	POINT SOLUTION	INTEGRATED SOLUTION
IT Deployment	$4,607 per 100 users	$39,618 per 100 users
User Administration	$94 per 100 users	$5,086 per 100 users
IT Operations	$15,712 per 100 users	$59,476 per 100 users
Total Savings	$20,413 per 100 users	$104,180 per 100 users

Source: International Data Corp.

users unable to complete any of their responsibilities. For users working with POS terminals, remote order entry or inventory tracking, in time-sensitive production environments or collaborative work, a network that is down totally stops work. For the remainder of users, the inability to access shared resources, internal and external communications, and Internet resources will have a substantial negative impact on productivity, even though it will not result in complete cessation of work. Since any unproductive users are a drain on company resources, companies that can minimize downtime can eliminate inefficiencies in the processes of all networked employees.

For users working with POS terminals, remote order entry or inventory tracking, or in time-sensitive production environments or collaborative work, a network that is down totally stops work.

Availability is a problem that spans the disciplines of network, systems and application management.

But lost user productivity is only part of the story. For users involved in revenue generation, downtime exacts a second critical toll from the corporation: lost revenue. These lost revenues can stem from business lost due to the inability of sales personnel to communicate or conduct transactions. Financial institutions, which rely on frequent transactions, lose enormous amounts of business when their network goes down.

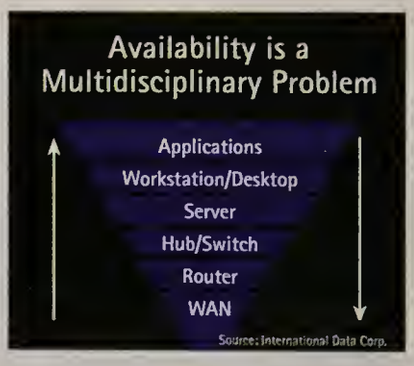
Downtime can also affect revenue by slowing a company's ability to respond to customer problems. For example, downtime can hinder customer service representatives from meeting requests in a timely manner, leaving the customer dissatisfied. A dissatisfied customer is at risk of going to the competition.

More frequently, though less overtly, downtime can affect the business simply by slowing processing procedures and delaying revenue recognition, particularly as such procedures become more automated.

THE USER'S PERSPECTIVE

Any management facility is measured by its ability to support the availability and performance of network resources for users. These network resources go beyond the hub, switch, router or WAN link to include distributed servers, desktops and network-based applications. Figure 6 shows that the problem of availability spans the disciplines of network, systems and applications management.

FIGURE 6



Guaranteeing 24 x 7 availability of critical network devices is essential to overall network performance but

means little if a user's application fails for some other reason. The real value of diverse network devices, servers and desktop systems is realized only with consistent and reliable performance of applications. Without application availability, everything from the user to the backbone is effectively down.

All IS organizations must support the effort to guarantee performance and reliability at the application level, for this is the front line of productivity gains (as well as losses). Applications management may be indispensable, but it is also typically the area where the least sophisticated management solutions are deployed.

Viewing availability as a business problem further focuses attention on an application-centric view of management. Only a clear view of application-level management statistics can offer true visibility through the desktop to business processes as executed through an application. As applications are ultimately the bottleneck to any productivity gains, integrating application asset, traffic and performance data into one management environment is a key for IT.

AVAILABILITY AND MANAGEMENT SAVINGS

Losses resulting from downtime do not show up in the IS budget; the true impact of these losses permeates the entire company. It follows that cost savings from minimizing downtime will not show up in the IS budget either, making it incumbent upon IS management to communicate to corporate management the cost and potential savings associated with downtime. At the 20 companies surveyed by IDC, savings in availability accounted for 46% to 60% of total savings.

Figure 7 shows that average availability savings ranged from $49,847 per 100 users for organizations implementing point management solutions to $101,599 per 100 users for those implementing an integrated management solution.

As applications are ultimately the bottleneck to any productivity gains, integrating application asset, traffic and performance data into a single management environment is an essential goal for IT.

FIGURE 7

Comparison of Savings Due to Increased Availability for Point and Integrated Management Solutions

	POINT SOLUTION	INTEGRATED SOLUTION
User Productivity	$13,538 per 100 users	$29,520 per 100 users
Lost Revenue	$36,309 per 100 users	$72,039 per 100 users
Total Savings	$49,847 per 100 users	$101,559 per 100 users

Source: International Data Corp.

A full examination of the cost of downtime requires analysis of a firm's business activities that rely on IT. Managers must ask "What is the probability of losing a customer if my network goes down?" In so doing, IS managers can build support within the corporate brain trust to deploy management products that will help minimize downtime. ✦



How Management Products *Improve* Productivity

IS organizations stand to reap significant productivity gains and cost savings following an investment in management software.

This section will examine the impact of tools on productivity in the three most important IS management tasks:

- System and software deployment (installation and upgrade)
- User and resource administration (security and access control)
- IT operations (fault detection, correction and general maintenance)

DIFFICULT DEPLOYMENTS

In the mainframe era, deploying new systems and applications was a mere matter of moving a new or modified application from testing to production. The process was simple: The new code was moved into the correct library and the JCL (Job Control Language) code changed as appropriate.

The desktop PC and, later, the client/server computing model brought about substantial changes that make deploying systems and software much more difficult. Factors complicating today's situation include:

- Dis-integration of both hardware and software;
- Greater complexity of client/server applications;
- Greater user demand for flexibility and choice; and
- A more rapid rate of change in most organizations.

To manage rapidly changing hardware and software needs, IS must perform hardware upgrades at least yearly. Major software re-engineering occurs every few years, and minor software updates are a constant concern. The combination of hardware, operating system and application suite changes at an individual's desktop may result in a need for software updates on a nearly daily basis.

The bottom line is that the hardware and software deployment processes are orders of magnitude more complex than they were in the mainframe era.

All these complexities and high rates of change manifest themselves in a need to manage the distribution and updating of components of many types on a frequent basis. Examples of such updates would be:

- Upgrades to the base operat-

FIGURE 8

Comparison Between Complexity Metrics for Host-Based and C/S Distributed Environments

	HOST-BASED ENVIRONMENTS	C/S DISTRIBUTED ENVIRONMENTS	APPROXIMATE RATIO
Number of devices	hundreds or thousands	thousands or tens of thousands	10
Number of possible configurations of user device	one	hundreds	500
Number of software modules per application	a few	dozens	10
Frequency of hardware change	every decade	every few years	5
Frequency of system software change	every year or so	weekly or monthly	10
Frequency of application change	every few years	monthly	10
Number of application variants	one	many	10
Total Cumulative Complexity Ratio			250,000,000

Source: International Data Corp.

ing environment (e.g., migration from Win95 to NT)

- Updates of basic office software and suites (e.g., E-mail, Office 95)
- Updates of utilities, such as anti-virus software
- Updates of drivers, i.e., network shells, printer drivers
- Updates of application software, either packaged or developed internally

Because of their complexity, client computers (and, to some extent, servers) frequently require much customization in individual set-up and deployment; it is rare that one standard update will suffice for all. Consequently, it is often necessary for someone to actually "touch" every desktop.

If this deployment process is not automated, it will be highly inefficient. Respondents told IDC that the IS staff spent 190 hours per month on average on the deployment process for each 100 users. Of this time, the largest block (50%) was for software installation and upgrades (Figure 9).

Given this waste of labor, IT managers are looking for help in the deployment process. Current solutions include:

- Quickstart disks that permit rapid initial setup of client and server machines, in some cases allowing organizations to quickly replicate locally standardized configurations;
- Automated hardware and software discovery applications that permit rapid initial inventory and automatic updates that can be stored in a database; and
- Electronic software distribution products that permit unattended file transfer across LANs and WANs to many desktops and servers.

FIGURE 9



TWO REQUIREMENTS

While there are many technical requirements for a tool or set of tools that manage the deployment process, they all come down to two basic ones: scalability and manageability.

Scalability refers to tool per-

formance. Can it deal with large numbers of configurations? Distribute large-sized files? Perform distribution to thousands, or tens of thousands, of desktops? And do so over a variety of LAN and WAN links?

Manageability refers to the management of such large-scale deployments without it becoming as labor-intensive as the manual process it is replacing. A tool should permit a policy-driven approach to management, so an organization can set up deployment policies that are a function of job descriptions, departments, roles, etc.

Respondents using integrated management solutions for deployment reported a 43% reduction in staff time dedicated to this task.

IT DEPLOYMENT SAVINGS

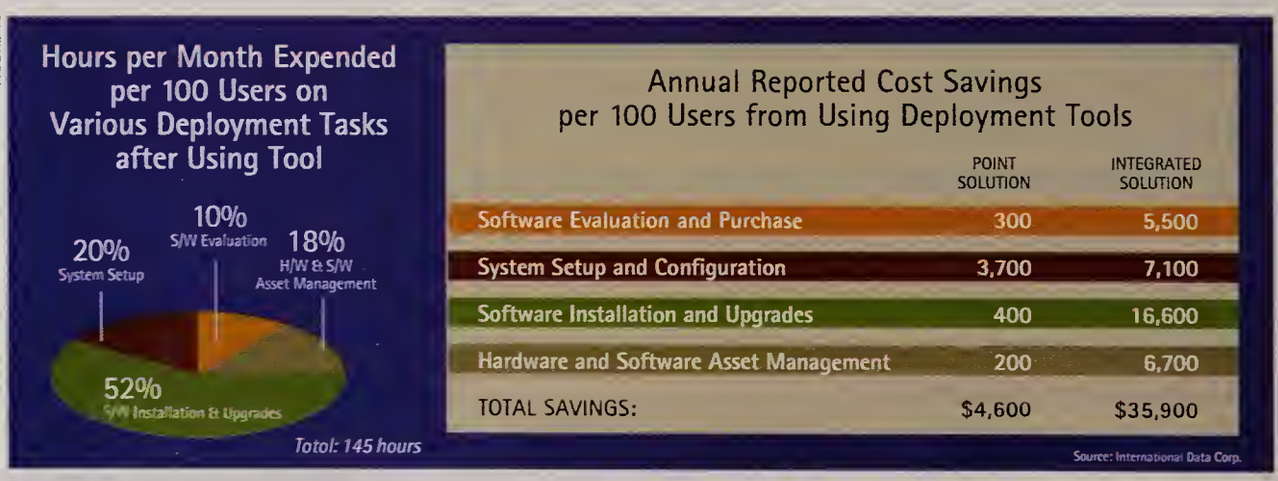
Respondents to IDC's survey reported a modest reduction in needed staff time per 100 users supported when they implemented independent point solutions. When integrated deployment tools are used, however, savings are substantial. Respondents using integrated management solutions for deployment reduced staff time 43%. IDC's survey revealed that the average annual cost savings per 100 users for companies deploying integrated management can approach $40,000 (see Figure 10).

COMPLEX USER ADMINISTRATION

As with software management, the client/server model adds complexity with respect to user administration. Administration refers to any task related to managing the users' accessibility to available resources on corporate systems. These resources include:

- the user's personal account and the files within the user's personal directory
- company-wide software, such as E-mail or calendars
- standard applications, such as Office 95
- applications specific to the user's department, role or assignment
- system resources, such as fax

FIGURE 10



Reducing Integration Toll

Cargill is a privately held corporation with 47 lines of business and over 1,000 sites worldwide. To manage its network of nearly 1,000 servers and just under 20,000 desktops, the Minneapolis-based corporation uses several products, including a suite of tools from Tivoli Systems, including Courier and Admin; HP OpenView; and standard server management tools such as Bay Networks' Optivity.

Years ago, Cargill employed a best-of-breed approach to build a suite of management tools. This approach provided the best functionality, but it also incurred a high price to pay in terms of integration. Management tool vendors had enough proprietary hooks to make integrating multiple tools difficult and costly. And every time a new version appeared, the integration would be in jeopardy.

Today, Cargill can buy a framework and build its own toolkit using either Tivoli's tools or those from many other companies. The corporation not only has a large selection of tools to draw upon, but its IT managers know that if a tool (regardless of version) is installed, "it will automatically be integrated with the others," says Mike Shelton, systems manager for Cargill. If a company does not have a suite or framework such as Tivoli, its only option is to buy a management tool and "try and make it fit," he adds.

Before Cargill started using management software for user administration functions, the company's IS staff had to manually set up IDs, access rights and application configurations. "It was a nightmare trying to update all of the tables with exactly the same information, even though they had to install them in different ways," Shelton said. Keeping all the directories in sync was difficult to do manually.

Now Cargill uses a management suite with custom features that was developed in-house using Tivoli's application development tool. Although the code development was of "medium complexity," the customization required just two weeks of one person with knowledge of Unix scripting.

Before, Cargill had to fix each directory manually and search for other problems the error caused. Now, the company has added an admin screen and a link to orchestrate the updating of OpenMail while the management software propagates all the admin updates and changes throughout the network.

With admin data being distributed automatically, the information is always accurate and consistent, thus avoiding the out-of-sync directories which can keep users from accessing the mission-critical databases or servers they need. Furthermore, users now know that their mail and file transfers will reach their destination, rather than getting lost in routing or being sent back.

Another unexpected but widespread benefit is that corporate users are more confident that their network access rights will be maintained, regardless of whether they are connecting from their own office desktop or from a mobile connection.

Most importantly, the integrated management tools ensure availability of the network applications and databases that Cargill depends on to run its businesses.

servers and Internet access
- Other specialized applications and resources necessary to perform the user's job

In a client/server environment, the responsibility for management of certain resources can extend into many parts of the company and may require access to, and management of, multiple heterogeneous systems.

The systems that provide or deny access to these resources can be networked desktops, portables or any of the many servers and hosts in the organization. In a client/server environment, this means that responsibility for management of these resources can extend into many parts of the company and may require access to, and management of, multiple heterogeneous systems.

This is the reason why the client/server model is responsible for adding complexity with respect to the function of user administration.

Upgrading desktop operating environments, adding new systems and reorganizing corporations create a need to adjust the access rights. In a large organization, this can be a considerable burden if the process is not automated.

In regard to user administration, the use of multiple operating environments creates many problems. The most notable problem is inconsistency in the methods of adding users, creating passwords, setting up access rules (user location, time-of-day, day-of-week, etc.) and access rights to applications and data.

Adding to the problem is the fact that some functions or capabilities may be available in one system but not in another. For example, in most Unix systems, user passwords are accessible to the administrator (or anyone with Root privileges) and can be freely viewed and edited. NetWare, on the other hand, permits no user (even those with Supervisor rights) to see current passwords, and only allows changing the password to a new one. The ability to set up access location, day and time restrictions also differs.

RAPID CHANGES

The forces driving the rapid pace of change in applications, systems as well as corporate organization affect user administration as well as software deployment. Upgrading desktop operating environments, adding new systems and reorganizing corporations create a need to adjust the access rights.

In a large organization, this can be a considerable burden if the process is not automated. How does reassigning a worker within a company change the rules of access to business applications, business data, messaging systems and groupware applications? Each of these applications and the systems supporting them will likely have its own unique administrative tool.

In order for a unifying tool to reduce the growing burden of user and resource administration, it must:
- support multiple platforms (e.g., operating systems, file systems, databases)
- support applications as well as systems (e.g., E-mail or

Lotus Notes)

- be physically scalable to thousands of systems
- be scalable in a management sense so that little staff time is required to administer thousands of people.

This last requirement implies that the tool must permit a policy-based approach to administration. Access rights should be made dependent on the position or role of the person in the organization. The tool will also be more apropros to the modern decentralized organization if it permits delegation of administration within policy rules.

Consider the example of a temporary accounting clerk in a branch office, who needs access not only to local office data but also to corporate data on a central system in the home office. It does not make sense to require that the central IS organization approve and set up access to that central system for a short-term worker in a branch office.

FIGURE 11



On the other hand, as a matter of policy, it is appropriate for the company to restrict temporary accounting clerks' access rights to central data. How can this dilemma be resolved?

The answer is manifested in the user administration application of the corporate policy so that temporary accounting clerks in general have designated rights (including, perhaps, rigid expiration dates), while permitting a branch administrator to add such a worker locally at any time.

A unifying management tool must permit a policy-based approach to administration. Access rights should be made dependent on the position or role of the person in the organization.

The process of user administration can, therefore, require considerable IS resources, though not on the same scale as those demanded for the deployment process.

ADMINISTRATION SAVINGS

As Figure 11 shows, an IS staff that does not have any special tools may have to expend an average of 20 hours/month in administration tasks per 100 users. The use of point solutions for individual environments provided no relief from labor costs for user and resource administration.

Maintaining operational availability can affect a business's very ability to serve its customers.

But the use of integrated administration tools that enable a manager to set up users and access controls for multiple, heterogeneous systems can reduce the time an IS staff needs for administration to 9 hours per month per 100 users.

Operations personnel are turning to automation to solve non-availability problems in a timely and cost-effective manner, but these solutions are often implemented in a set of stovepipes.

If an organization is to gain control of labor costs, the IS staff must have available to it a method of unifying the user administration process in one application. Even small labor savings can lead to considerable dollar savings. Of the organizations surveyed by IDC, those using an integrated solution reported saving, on average, $5,086 per year for each 100 users.

HETEROGENEOUS OPERATIONS

While system set-up in a heterogeneous client/server environment may prove a challenge for IS, particularly with regard to the cost/effectiveness of its service delivery, if a business cannot maintain operational availability, its very ability to serve its customers may be in jeopardy.

The problem is the many possible points of failure — network and systems hardware, operating systems, databases, middleware, the applications themselves — all of which exist at both client and server. The number of possible interactions between these elements is so immense that tracing the origin of a failure takes far too long for a mission-critical, online application. Fixing the problem can also be delayed if the infrastructure is geographically dispersed.

Again, the IT organization bears the cost of managing for availability. To provide the operational functions to support systems availability can require 300 staff hours per month for every 100 users. The largest part of this is to support users through the help desk.

Any non-availability of systems also costs the organization beyond the IT operation. These costs come from lack of employee productivity, since downtime usually means that staff cannot do their job or can do it only at reduced efficiency.

System non-availability also has an impact on the business from the customer's point of view. Companies depend on IT-based solutions to serve their customers, and the customers count on these systems too. Lack of availability can hurt the bottom line and, in extreme cases, can even cause the business to fail.

Operations personnel are turning to automation to solve these problems, but these solutions are often implemented in a set of stovepipes, i.e., separate solutions for separate systems, networks and applications.

OPERATIONS STOVEPIPES

The traditional solution to operations management problems has been to address each problem separately on each platform and with respect to each technology to be managed.

For this reason, point products were developed to manage the operational aspects of performance, availability, capacity planning, disaster recovery, data archiving, batch job scheduling, problem management and help desk on many different systems, from mainframes to PC servers.

These can be considered a set of disciplines, each with its own required level of expertise and its own specialized tools. Network management constituted another discipline, typically quite separate from the others.

With the advent of highly distributed systems, these point management solutions were simply dispersed over multiple systems, but there soon came demands to provide a degree of integration, if only to minimize overlap of responsibility and, more importantly, to minimize duplication of work.

Individual stovepipe applications merely shared the same network infrastructure and were thus able — at least in theory — to share information across operating environments. For example, this could be done using Windows, by running appropriate emulators in each window.

Such a design permits an administrator to deal with different systems from one console, but falls short of the ideal in that data sharing is not implemented. Full integration requires that a single application provide a common look and feel and be able to share unified data regardless of platform.

FIGURE 12

Time Spent on Operation Management Tasks Before and After Implementation of a Management Solution

	BEFORE MGMT.*	POINT SOLUTION*	%Δ	INTEGRATION SOLUTION*	%Δ
Network troubleshooting/repair	14.0	13.8	1%	12.3	12%
Network performance management	17.2	17.0	1%	15.3	11%
Server OS support and tuning	48.6	48.1	1%	32.6	33%
User support/help desk	30.3	22.4	26%	26.0	14%
Server set-up and configuration	61.5	57.8	6%	38.8	37%
Capacity planning	6.0	4.3	29%	5.9	2%
Disk, file, database management	39.3	36.1	8%	13.3	66%
Backup and archiving	35.3	33.2	6%	10.2	71%
Disaster planning and recovery	10.7	10.3	3%	5.3	51%
Batch jobs and file transfers	12.6	8.7	31%	6.8	46%
Application management	40.4	31.5	22%	26.3	35%
TOTAL	315.9	283.2	10%	192.8	39%

*Time spent on task in hours/month/100 users

Source: International Data Corp.

OPERATIONS SAVINGS

For its study, IDC defined 11 systems and network management disciplines. Figure 12 is based on reports from the firms surveyed of the hours their IS staff spent monthly in these activities for each 100 users. For each activity, three figures are listed: hours spent before deploying any tools; hours spent after deploying many standalone point solutions; and hours spent after deploying an integrated solution.

Full integration requires that a single application provide a common look and feel and be able to share unified data regardless of platform.

Use of standalone management tools has a significant impact on management productivity measured in hours. Even the use of point solutions can provide considerable staff savings, averaging a 12% reduction in staff time spent on operations and a $70,000 savings

Companies that deploy management software without investing specifically in the implementation process stand to gain far less from the software initially and over the life of the solution.

Customers evaluating management solutions must look for products that ease the implementation process, allowing them to focus more on management practices and less on the nuts and bolts of installation.

over five years in staff costs per 100 users. An integrated solution was even more effective, reducing staff time dedicated to operational tasks by nearly 34% for a staff cost savings of $270,000.

AVOIDING THE TRAP

The implementation process itself poses an administrative challenge in the proper installation and configuration of the software and in defining the organizational operations around a new solution. Companies that deploy management software without investing specifically in the implementation process stand to gain far fewer software benefits.

Investing IS staff time and energy into the implementation of a new management product leads to improvements in management practices.

The period of installation and initial configuration of a management product is a good time for IS to review management policies related to the new solution. Set-up is the best time to define new management domains and associated policies — how managed nodes should be grouped together and what levels of management each group should receive.

IS should define these groups at this point, for it is hard to go back and make changes in a live environment. In defining policy, initial effort is critical; once the IS staff returns to daily responsibilities, policy will fall to a distant priority.

The same holds true for operational procedures that define how IS staff interact with the management solution. Installing a product without a clear idea of how that product is to support the IS organization leaves IS administrators searching for functionality once the product is operational. IS administrators must understand how and where a new product will integrate into and improve their operations.

FEWER NUTS AND BOLTS

Customers evaluating management solutions must look for products that allow them to focus more on management practices and less on the nuts and bolts of installation.

Some of the functions that simplify the implementation process include common installation procedures, distributed configuration and policy definition capabilities. These functions reflect changes from multiple administrators across the managed environment, and a common GUI which limits training requirements.

Integrated management solutions deliver these functions, helping users sidestep the implementation trap. ✦



The Case for *Integration*

This section will make a compelling case for investing in integrated management software. IDC's model for measuring the costs associated with network and systems management supports these conclusions through calculations of savings. But we must first illustrate by what means integrated software can improve management processes.

Do integrated management solutions offer a significantly better ROI than independent point solutions?

With the advent of highly distributed systems, individual management applications began to share the same network infrastructure. They were thus able — at least in theory — to share information across operating environments. This led to a basic level of integration that IDC calls "integration on the glass." This type of integration provides "windows" into each application from a common user interface.

Such a design lets an administrator deal with different systems from one console, but falls short of true integration since there is little or no ability to share data across applications and environments. The only way that duplicated effort can be reduced is by cutting and pasting between the windows or by means of scripts.

True integration requires that a single application provide both a common look and feel and be able to share unified data regardless of the platform. Ability to share information across management disciplines is also desirable. A truly integrated management solution must:

1. be cross-platform — the application for a particular management discipline must operate transparently across different operating environments;

2. be cross-discipline — the various applications for different disciplines must share information as appropriate; and

3. be open — so that the customer's chosen solution for a point management tool can be integrated where needed.

A cross-platform solution permits the customer to execute a given administrative or operational activity on multiple platforms simultaneously (see sidebar, p. 28).

Cross-discipline capability allows the software manage-

Software Distribution as an Example of a Cross-Platform Activity

The advantages of a truly cross-platform solution are seen in software distribution. An administrator wants to distribute a client/server application throughout a department. The client components must run on Windows 95 and Unix desktops; the server component runs on Windows NT and Unix servers.

A merely multi-platform solution may be able to transfer from Unix to Unix and from Windows to Windows, but a truly cross-platform solution can distribute the software as needed from a single repository onto all the needed destinations simultaneously using one administrative tool to define the requirements and execute the distribution.

The solution takes care of the particular requirement of a given platform, thus leveraging the investment that must be made in setting up the distribution.

ment tool to be integrated with, say, a storage management tool so that the backup program knows about recently distributed software and backs up only if necessary.

The full integration of these environmental and discipline stovepipes into a systems and network management application set requires that the tool provide a unified, open method for viewing and sharing information that can be used by all applications across all platforms. An integrated management solution implies that:

1) the tool has a consistent user interface;

2) the tool can share information across operating environments and disciplines (implying a need for a database repository and a common object-oriented framework);

3) the tool permits both a system- and a business-oriented view of the systems;

4) the tool is capable of being fully distributed, both physically and logically; and

5) the tool permits a hierarchy of management, permitting delegation of authority down the organization from the top and escalation of actions up from the bottom.

If these requirements are met, considerable advantages can be gained by leveraging the benefits of the different pieces. In a large-scale multi-platform, distributed environment, there are many management "transactions" that span multiple platforms, including event alerts, user account updates, software distribution, storage management actions and performance data collection.

Without a cross-platform integrated solution, the user must execute or evaluate actions many times. Integration permits the leverage of management actions:

- by permitting one administrative action to take effect on multiple platforms simultaneously and without error-prone multiple steps; or
- by automatically correlating events across multiple platforms for easy digestion at one time.

LEVERAGING REUSABILITY

A customer has more leverage if solutions that have proved their value in the organization can still be used. Systems and network managers may have already selected best-of-breed point products, and invested considerable resources

FIGURE 13

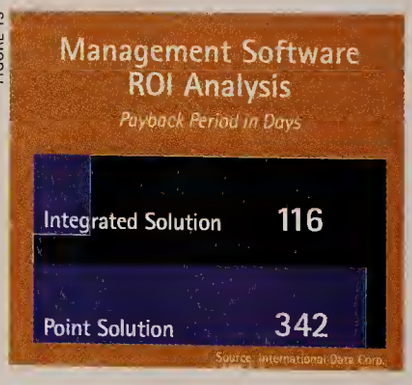


FIGURE 14



in implementing them. Open solutions permit customers to treat such solutions as if they were native to the framework, leveraging their investment. The result: the whole integrated solution has greater value than the sum of its parts.

COMPELLING ROI

By leveraging common services across multiple platforms, sharing data among management functions, providing an open interface to complementary products and easing the total implementation process, integrated management solutions offer significant savings in management and operational costs.

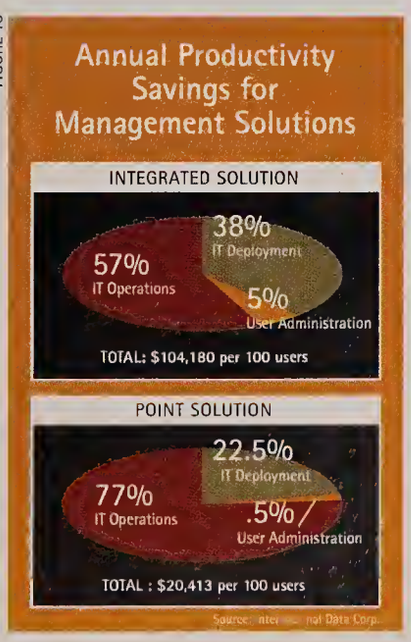
Deploying an integrated solution has higher benefits than a point management solution. The full cost of deploying an integrated management solution (including software, set-up services and ongoing maintenance) will be paid back to a company through improvements in IS staff efficiency and productivity, and IT resource availability, over 116 days. Deployment of point solutions requires nearly 342 days to recoup the full implementation cost (see Figure 13, p. 28).

To further illustrate the benefits of integrated management over point solutions, IDC will examine the composition of each savings metric. Though the total management efficiency savings for both integrated and point solutions are similar (see Figure 14), integrated solutions generate more savings in labor than point solutions. By reducing redundant tasks and minimizing training requirements, integrated management software enables IS staffs to cope with expanding networked environments.

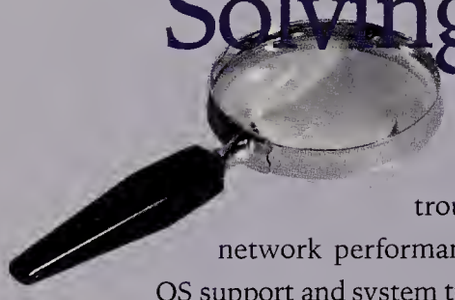
In terms of management productivity, integrated solutions offer savings of $104,180 per 100 users, five times the $20,413 per 100 users that point solutions generate. In addition, IT deployment drives relatively more savings in integrated than point solutions. IT deployment accounts for 38% of total productivity savings resulting from integrated solutions and 23% of total productivity savings from point solutions (see Figure 15).

Users should not confuse cross-platform integration with multi-platform support. Without a cross-platform integrated solution, the user must execute or evaluate actions many times.

FIGURE 15



Solving Availability Problems



Pagenet is a paging company based in Dallas, Texas. Its network consists of thousands of computers; about 600 of the most operationally critical terminals are managed by corporate headquarters and are supported by more than 100 servers across the United States and Canada.

By using systems management tools, Pagenet has achieved significant savings in the areas of desktop system setup and configuration; desktop software installation and upgrades; network troubleshooting and repair; network performance management; server OS support and system tuning; disk, file and database management; running batch jobs and file transfers; and applications management.

To meet its management needs, Pagenet uses a suite of four tools from Tivoli Systems. The company also uses several other tools that were easy to integrate into the management suite, because the suite allows third-party tools to plug-and-play, or share data with the other tools without any special integration.

One reason Pagenet uses automated management tools was that the company's users were experiencing availability problems with a mission-critical Unix server used as a "hub of hubs," said Michael Pugh, lead systems engineer for systems management. This computer stores and processes operational data that Pagenet's customers and internal users need to access. Otherwise, Pugh says, "their X terminals and windows would hang up." This could occur due to link failures or a server failure, and would not only rob users of being productive, it would also flood the help desk with complaints.

Now the management software monitors the network and all resources every few minutes. If any of the links or systems respond with a Negative Acknowledgment, the tools identify which shells or processes are "hung" and "kills" them (or resets them). As a result, users can avoid having to report the trouble, help desk people can avoid having to generate trouble tickets and technicians can avoid having to kill the processes manually, which requires Root Access.

Prior to its implementation of management tools, the help desk received hundreds of calls per month on this issue. Now the number of calls they receive is fewer than ten. "The last time the box was down, users did not even notice," Pugh said. "It was fixed in a matter of seconds."

Pagenet's network users are receiving better network availability, better service from the help desk and problem resolution teams, and better response times for backup and store requests. Meanwhile, systems managers are better able to tune the network and head off typical problems such as disk space utilization.

The Tivoli framework makes it easy to integrate several tools and achieve "custom" integration. For instance, Pagenet implemented a tool to monitor the network's utilization (frame rate trend analysis) on different links. The job scheduler now interacts with that tool to avoid the accidental overscheduling of batch jobs. A backup and restore utility that Pagenet added was also easy to integrate.

As a result, when Pagenet evaluates vendors of systems management tools, it focuses on the "integratability" of their products. A vendor's product must support standards such as CORBA. Because of its focus on standards and its use of Tivoli, Pagenet has had few problems integrating its management tools.

FIGURE 16



Overall, integrated solutions reduce downtime more than point solutions. Organizations that deploy integrated solutions can achieve twice the savings in availability (see Figure 16) as those deploying point products — $101,559 versus $49,847 per 100 users, respectively. But availability savings for point and integrated solutions are similarly allocated between lost user productivity and lost revenues, at roughly 30% and 70%, respectively.

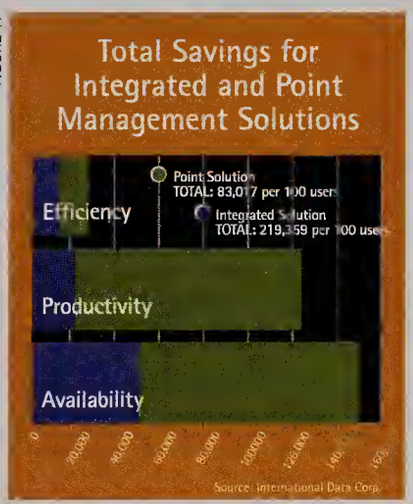
COMPARING SAVINGS

For both solutions, productivity and availability are the two main drivers of savings (see Figure 17). With integrated solutions, productivity accounts for 47.5% of the total and availability for 46.3% of the total. Point solutions achieve 60% of total savings from greater availability and 24.6% from productivity gains. Improvements in management efficiency savings account for 15.2% of savings for point solutions but only 6.2% of savings for integrated ones.

Not only do integrated solutions generate more savings, they also cost less to implement, including software, setup and maintenance. Total investment per 100 users for an integrated solution is $69,442, including an integration cost of $2,612 per 100 users. Total investment for a point solution is $77,856 per 100 users.

Organizations that deploy integrated solutions can achieve nearly twice the savings in availability as those that deploy point products.

FIGURE 17



By detailing the savings in the three metrics of management efficiency, staff productivity and resource availability, IDC has shown that users can achieve superior ROI by using management tools which offer cross-platform and cross-discipline functionality and which support integration with complementary point management products. ✦

IDC has demonstrated that users can achieve superior ROI by using management tools which offer cross-platform and cross-discipline functionality and support integration with complementary point management products.

PictureTel's SwiftSite works with television

ISDN-based videoconferencing system

By Kristi Essick
SAN FRANCISCO

PictureTel Corp. last week unveiled SwiftSite, an Integrated Services Digital Network (ISDN)-based videoconferencing system that works with a regular television.

The SwiftSite system, a 10-pound, set-top box, will cost $8,995.

The box includes a camera with pan, zoom and tilt functions, microphone, ISDN telephone line connection and audio/video compression components, according to a company press release.

Video delivery over the system averages about 15 frame/sec. An infrared remote control device also is included with the device.

PictureTel in Danvers, Mass., has sold 1,000 of the devices to test customers worldwide. The company is lining up partners to distribute, jointly brand or license the product in the U.S. and abroad, according to Diane Parazin, a spokeswoman for the company. But the company wouldn't comment about which geographical areas it plans to target first.

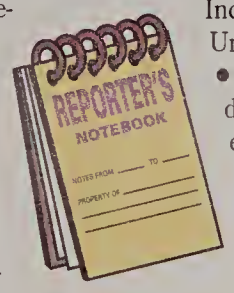
Essick writes for the IDG News Service in San Francisco.

Unix products debut

Unix Expo Plus is focused forum

By Jaikumar Vijayan

Since most of the top-tier Unix vendors made their major product and strategy announcements before the recent Unix Expo Plus show in New York, the actual event was subdued.



Among the handful of announcements from the scores of smaller vendors at the show were the following:

- **Unisys Corp.** unveiled the latest addition to its ClearPath family of scalable servers. The mid-range symmetrical multiprocessing (SMP) 6400 server supports up to four Intel Corp. 166- or 200-MHz Pentium Pro chips and up to 4G bytes of internal RAID storage. The new system supports Windows NT 3.51 or higher, SCO, Inc.'s UnixWare 2.1 and Unisys' version of Unix.
- **Data General Corp.** demonstrated its newly enhanced Cybershield integrated Internet package that runs on its line of Aviion servers. Cybershield is a combination of Internet server, intranet server and firewall software rolled into one. Data General is offering Cybershield as an option on its Aviion servers. DG also demonstrated its Windows NT and Unix clustering capabilities with FirstWatch fail-over software from Veritas, Inc.
- **Iona Technologies, Inc.** announced that it is developing a bridge between Windows NT and the Object Management Group's Common Object Request Broker Architecture (CORBA) standard. The bridge will allow interoperability among objects that conform to the Distributed Component Object Model architecture of Windows NT and CORBA.
- **DataFocus, Inc.** announced the integrated NutCracker product family for software developers who want to port their Unix applications to Windows NT and Windows 95. Using NutCracker, developers can port their existing Unix source code unchanged to hardware and chip architectures supported by Windows NT and Windows 95.

Digital

CONTINUED FROM PAGE 47

this, Digital users had to wait for Windows NT applications to be ported specifically to Alpha platforms.

The translation software is critical to Digital's strategy of gaining wider market acceptance for its Alpha RISC chips.

But the availability of the software alone is unlikely to lure many users to the Alpha platform, observers said. Until Digital can offer Intel Corp. performance at Intel prices, Alpha is unlikely to be much more than a niche player in the x86 market, analysts said.

Officials at Digital said with FX32 on Alpha, it is possible to run 32-bit Windows applications at speeds that match or are faster than Pentium Pro chips and are about 70% of native Alpha performance.

Who benefits?

The main beneficiaries of FX32 will be Alpha users who have been forced to buy separate PC hardware for commercial Windows applications and still use Alpha systems for number crunching and compute-intensive operations.

"FX32 is going to be the silver bullet for 32-bit Windows applications on an Alpha platform," said Terry Shannon, editor of "Shannon Knows DEC," a newsletter in Ashland, Mass.

"If I can run all my applications on a single Alpha machine, I think it is going to be wonderful," said Jerry Flynn, a technical specialist at Bentley Systems, Inc., in Exton, Pa., which makes imaging and computer-aided design software.

"We have software running native on the Alpha, but there are a lot of other tools we use that are not available on it yet," he said.

FX32 will be available free to users by next week. It is the latest in a series of translation technologies from Digital. Between 1989 and 1992, the company developed similar software that allows VAX applications to run on Alpha hardware. Later, Digital developed translation software that allows applications from other RISC vendors such as MIPS, Inc. and Sun Microsystems, Inc. to run on Alpha systems.

NCR boosts Teradata porting

CONTINUED FROM PAGE 47

unlikely to migrate large database applications to Windows NT any time soon, analysts said.

But the benefits could become tangible in the long-term, observers said.

"NCR is making something available on NT that is well-known, well-understood and enterprise-proven," said Brian Murphy, an analyst at The Yankee Group in Boston.

"Teradata is a good platform for a lot of people who are looking at building NT applications" for the data center, he said.

"It probably is a good idea that they are making Teradata open and accessible to more users," said Julio Chavarria, manager of the customer information services center at Blue Cross/Blue Shield of Illinois.

Wait and see

But the center is unlikely to move to Windows NT in the foreseeable future, he said.

Having only recently purchased a Sun Microsystems, Inc. Unix platform to power Blue Cross/Blue Shield's Teradata database, Chavarria wants to "first get our money's worth from what we already have."

NCR's data mart initiative includes the following:

- Enhanced, high-speed data replication services for Teradata that provide high availability and performance.
- Improved interoperability between Teradata and Microsoft's SQL Server database.
- A partnership with Microsoft to jointly develop related technology, marketing and service efforts.

Teradata's new multimedia options will let users store, retrieve, manipulate and analyze objects such as video, image, audio, graphics and text and link them to traditional alphanumeric relational information.

Briefs

Lucent preps Internet servers

Lucent Technologies, Inc. is developing servers for multimedia and telephony over the Internet, designed for corporate users. The company, formerly the networking division of **AT&T Corp.**, is developing a telephony server that uses ordinary telephones. Users will be able to make a call to the server, which will make a connection with a second Lucent server across the Internet. The second server will then make a local call to the number a user is trying to reach. The telephony server can also be used for store-and-forward faxes, voice mail and other multimedia. The company is developing universal messaging technology to allow users in a corporate environment to view electronic mail and faxes and listen to voice mail using any standard Internet mail client. The faxes and voice mail will be sent as multimedia attachment files. Lucent expects the products to be available in the first quarter next year.

New Best UPS debuts

Best Power in Necedah, Wis., has introduced new versions of its uninterruptible power supply (UPS) to protect **Novell, Inc.**, Unix, Microsoft Corp.'s Windows NT and other networked environments. The new Fortress models include Windows 95 plug-and-play compatibility, "hot-swap" battery replacement and voltage regulation. The UPS systems, which are bundled free with Best Power's CheckUPS II power management software, will cost from $509 for 520VA models to $999 for 1,420VA.

Sun to ship Netras

Sun Microsystems, Inc. has announced the addition of three symmetrical multiprocessor versions of its Netra packaged Internet servers. The Netra Internet Server 4000 and 5000 target corporations that build large World Wide Web sites. They support up to 14 of Sun's UltraSPARC chips and come bundled with **Netscape Communications Corp.**'s SuiteSpot Web server. The Netra Internet Server 2/1200 is a dual-processor server aimed at smaller sites.

DEC unveils notebooks

Digital Equipment Corp. has introduced a line of aggressively priced low-end notebooks. The HiNote VP 500 will range in price from $2,499 to $3,699 for laptops with 120- and 133-MHz Pentium processors. The line will have 11.3-in. and 12.1-in. active-matrix or dual-scan screens, 8M bytes of memory that is expandable to 40M bytes with storage capacity of 1.08G bytes or 1.44G bytes. The laptops are available now.

How Will The Launch Of Mid-range Computing? Let's Just

The Compaq ProLiant 5000 has arrived. And it's going to change everything that lies in its path. Including how you think about mid-range computing.

The ProLiant 5000, with its Pentium® Pro processor, delivers unprecedented performance for mid-range solutions.

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In today's client/server environment, you need more than power—you need control. So we've combined the Pentium Pro processor with a concept we're calling Integration Management. Giving you new tools to manage your system throughout its entire life cycle.

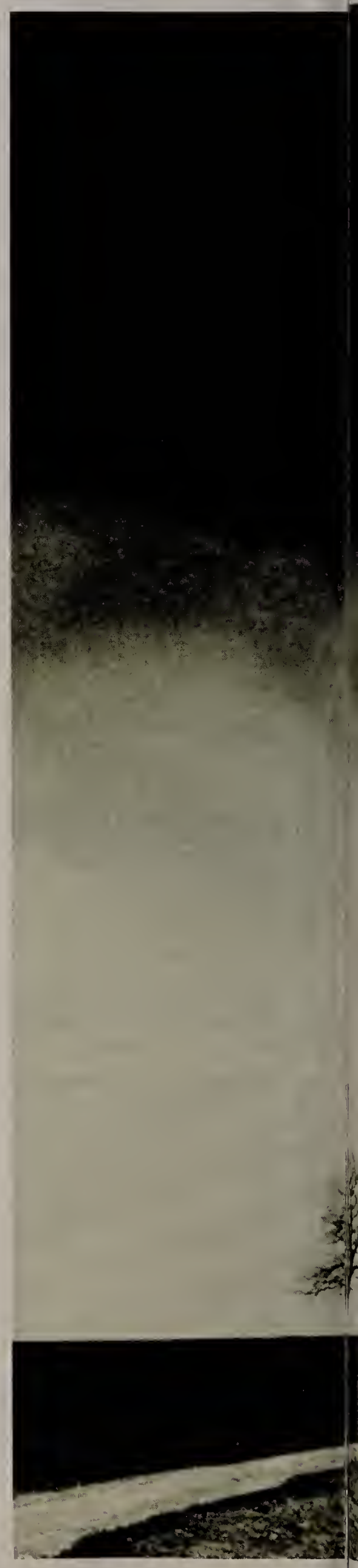
Improvements to SmartStart now let you set up an Integration Server, which basically serves as a holding tank for all your software. It also simplifies the setup and maintenance of your network. All you have to do is configure your Integration Server and then, using SmartStart, deploy it across your entire network. It not only ensures consistency across all your network servers, it saves you a lot more than just shoe leather.

Maintaining your network is easier now, too. Thanks to some cool new features on Compaq Insight Manager, you can get updates and new software revisions via the Internet, your modem or CD. And then transfer them to the Integration Server just one time. You can even maintain your network when you're away from the office. All you need is your notebook and a phone line.

We've also partnered with the industry-leading companies of system management applications. So now you can view your entire network in one place. Together, these and other improvements have helped reshape the landscape of mid-range computing, by creating the most manageable server in the industry. To find out more about the ProLiant 5000, visit our Web site at www.compaq.com, or call us at 1-800-315-7772. It's not just a server. It's a force to be reckoned with.

System	tpmC	$ per tpmC
ProLiant 5000 6/166 M2	**5676.93**	**$135**
HP 9000 Server T500	5621.00	$380†
WorldMark 5100S	5607.00	$394
SPARC center 2000E	5124.21	$323
HP 9000 Model K420	4939.11	$232
IBM RS/6000 J30	3631	$289

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New Products

Parallax Graphics, Inc. has released X-Video Xtra video overlay cards.

According to the Santa Clara, Calif., company, the cards allow display of 24-bit video while using any frame buffer to run combined high-speed graphics and video applications.

XVideo Xtra costs $7,995.

▶ *Parallax Graphics*
(408) 727-2220
www.parallax.com

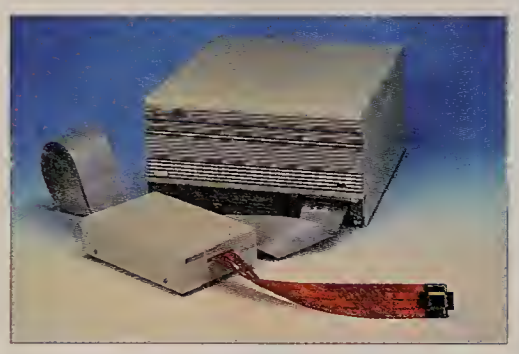
Tecmar Technologies, Inc. has announced WangDAT 3800, a Digital Data Storage-2 tape drive.

According to the Longmont, Calif., company, the WangDAT 3800 has a data transfer rate of 1.5M byte/sec. and a 100-speed search mode.

Pricing for WangDAT 3800 starts at $1,299.

▶ *Tecmar Technologies*
(303) 682-3700
www.tecmar.com

Hewlett-Packard Co. has announced an emulator probe, HP E3470A. The probe allows full-speed debugging for designers working with Mitsubishi Electric Corp.'s MELPS M16C microprocessors.



Hewlett-Packard's *emulator probe, the HP E3470A*

According to officials at the Palo Alto, Calif., company, the product features up to 1M byte of dual-ported emulation memory.

Pricing for HP E3470A starts at $4,800.

▶ *Hewlett-Packard*
(800) 452-4844
www.hp.com

Level\5 Research has released Internet Database Publishing Tool Quest Server 2.0.

According to the Melbourne, Fla., company, Version 2.0 has intelligent agent technology for making applications more interactive. The service also allows for faster searching of larger databases.

Pricing starts at $1,495.

▶ *Level\5 Research*
(407) 729-6004
www.l5r.com

Eltron International, Inc. has announced Eltron Companion, a series of small desktop or wall-mounted thermal printers.

According to officials at the Simi Valley, Calif., company, the printers can be used for retail point-of-sale, health care, home shopping or banking and general office labeling. They can print text, graphics and bar codes with 203 dot/in. resolution, company officials said.

Pricing for Eltron Companion starts at $295.

▶ *Eltron International*
(805) 579-1800
www.eltron.com

IBM Printing Systems Co. has announced the InfoPrint family of printing products and services for digital print-on-demand and traditional printing markets.

The Boulder, Colo., firm said InfoPrint lets customers perform short-run, quick printing of black-and-white and color documents that can be customized. The family includes software and services and three printers: IBM InfoColor 70, IBM InfoPrint 4000 and IBM InfoPrint 60.

Pricing for InfoPrint 60 starts at $110,703; pricing for InfoPrint 4000 starts at $341,300. Pricing for InfoColor 70 starts at $365,000.

▶ *IBM Printing Systems*
(303) 924-6300
www.can.ibm.com



Kensington Technology Group has announced a joint venture with Master Lock Co. for marketing The Master Lock Universal Notebook Security Cable, a 6-ft. galvanized steel cable and locking device to deter the theft of laptops and other computer equipment.

The San Mateo, Calif., firm said the cable can be wrapped around any immovable object with the locking device inserted into the security slot that is built in to many notebook computers. A retrofit kit is available for notebooks that don't have a slot.

The Master Lock Universal Notebook Security Cable costs $44.99.

▶ *Kensington Technology Group*
(415) 572-2700
www.kensington.com

Overland Data, Inc. has announced Global Control Module. It lets users modularly expand a 400G-byte base unit to create a single, local tape library that has more than 3T bytes of capacity.

According to officials at the San Diego company, the module allows throughput of up to 172G bytes per hour.

Pricing for Global Control Module starts at $5,000.

▶ *Overland Data*
(619) 571-5555
www.overlanddata.com



Decision Data's *6530 printer series*

Decision Data, Inc. has announced the 6530 series of impact printers for multiplatform midrange applications.

The Horsham, Pa., firm said the 6530 series has ASCII/Twinax SCS or ASCII-only support. Pricing starts at $599.

▶ *Decision Data*
(800) 887-2640
www.decisiondata.com

Kantek, Inc. has announced the Superstor, a desktop organizer for the tops of monitors.

Officials at the East Rockaway, N.Y., company said Superstor has space for everything from CD disks and letterhead to pens and scissors and can be adjusted for tilted monitors. It costs $49.95.

▶ *Kantek*
(516) 593-3212
www.kantek-spectrum.com

Best Data Products, Inc. has announced a line of five Smart One PC modems that have Windows 95 plug-and-play operation.

Officials at the Chatsworth, Calif., company said the modems provide full duplex operation throughput of up to 134,400 byte/sec.

Prices range from $139 to $189.

▶ *Best Data Products*
(818) 773-9600
www.bestdata.com



Alps Electric's *GlidePoint Wave Keyboard*

Alps Electric (USA), Inc. has introduced Alps GlidePoint Wave Keyboard, which has a curved, centrally split design.

According to officials at the San Jose, Calif., company, the keyboard accommodates the natural angle of a user's arms and hands.

The Alps GlidePoint Wave Keyboard costs $89.95.

▶ *Alps Electric*
(408) 432-6000
www.alpsusa.com

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Developers can control Java access with firewall, 60

Software

Can't have it all?

Tight budgets can prompt tough choices in Web development

By Tim Ouellette

Many corporate development groups are committed to Lotus Notes and World Wide Web technologies, but some are finding that budget constraints limit their ability to succeed at both.

For example, Federal Express Corp. recently canceled development of a version of its FedEx Ship software for Lotus Development Corp.'s Notes.

"We canceled for internal reasons," said Michael Moseby, a program management adviser for global customer automation support at FedEx. "We are moving resources to other projects."

The Memphis-based shipping giant will instead emphasize its Web site as a service offering. FedEx had been working on both Notes- and Web-based products in the past year. It has succeeded in offering shipping and tracking services for users with a Web browser.

Web technology

FedEx Ship for Notes would have required that users have a Notes or basic Windows client. Users would then dial in directly to FedEx's Notes servers to get information.

The company's change of heart shows how the Web is becoming an option for many customer services and how companies have to constantly examine their development budget priorities to keep pace with Web technology.

At last January's Lotusphere, Lotus' annual conference, FedEx officials said the company's development budget in electronic tracking was split evenly between Web products and FedEx Ship for Notes. Notes features such as security and cross-platform support were touted.

"In a world of rapidly changing markets and technology, it is expected that some FedEx products will not reach a released state. FedEx remains committed to further expansions of its current suite of electronic delivery and tracking products," said a FedEx notice.

FedEx still uses Notes for internal communications, even though the Web seems to be its choice for

Web, *page 64*



FedEx *is concentrating on developing its Web site for customer service*

Databases grab hold of objects, multimedia



Burlington Coat Factory's Michael Prince *said he hopes to be able to assemble bits of software to create applications quickly*

JERRY VALENTE

By Craig Stedman

Database users are entering a brave new world where relational software can reach out and embrace objects and other complex data types.

Despite the prospect of a steep learning curve and possible performance impacts, a half-dozen information systems managers recently said they hope to reap business benefits that will make the blending of relational and nonrelational technologies more than worth the trouble.

Imaging aid

For example, First Chicago Mercantile Services LLC expects to use Informix Software, Inc.'s upcoming Universal Server to set up an image-enabled payment processing service for banks, credit-card companies and other customers, said Maribeth Anderson, manager of technology at the Chicago-based firm.

If all goes as promised by Informix, invoices would get stored as images that could be viewed or sent to consumers who have questions about their bills, Anderson said. The data could still be indexed and accessed using relational techniques, with the goal of making it easy to locate records.

"We'll have millions of these records," Anderson said. "Just because they're images, I don't want to have to treat them any differently [than standard relational

Databases, *page 60*

Pick a side

Inside vs. outside: That's the choice IS managers will face in evaluating the object plug-in technologies that are being developed by relational database vendors.

Informix's DataBlade architecture hooks plug-in modules directly into the database server. On the other hand, Oracle's cartridges will stand apart from the database and connect to it by passing objects across a network. IBM and Sybase are also taking similar external approaches, analysts said.

Cartridges may be more flexible and adaptable than DataBlades because they won't be tied to the internals of a database, said Richard Finkelstein, president of Performance Computing, Inc., a consultancy in Chicago.

"But being independent usually creates performance issues" because of the network traffic that becomes necessary to connect the dispersed pieces of an application, Finkelstein said.

Some users said the differences may be academic because they expect to go with whatever approach their favored database vendor picks.

"I've got portability to go to other operating systems and hardware vendors. But I'm pretty locked in to Oracle right now," said Michael Prince, MIS director at Burlington Coat Factory.

— Craig Stedman

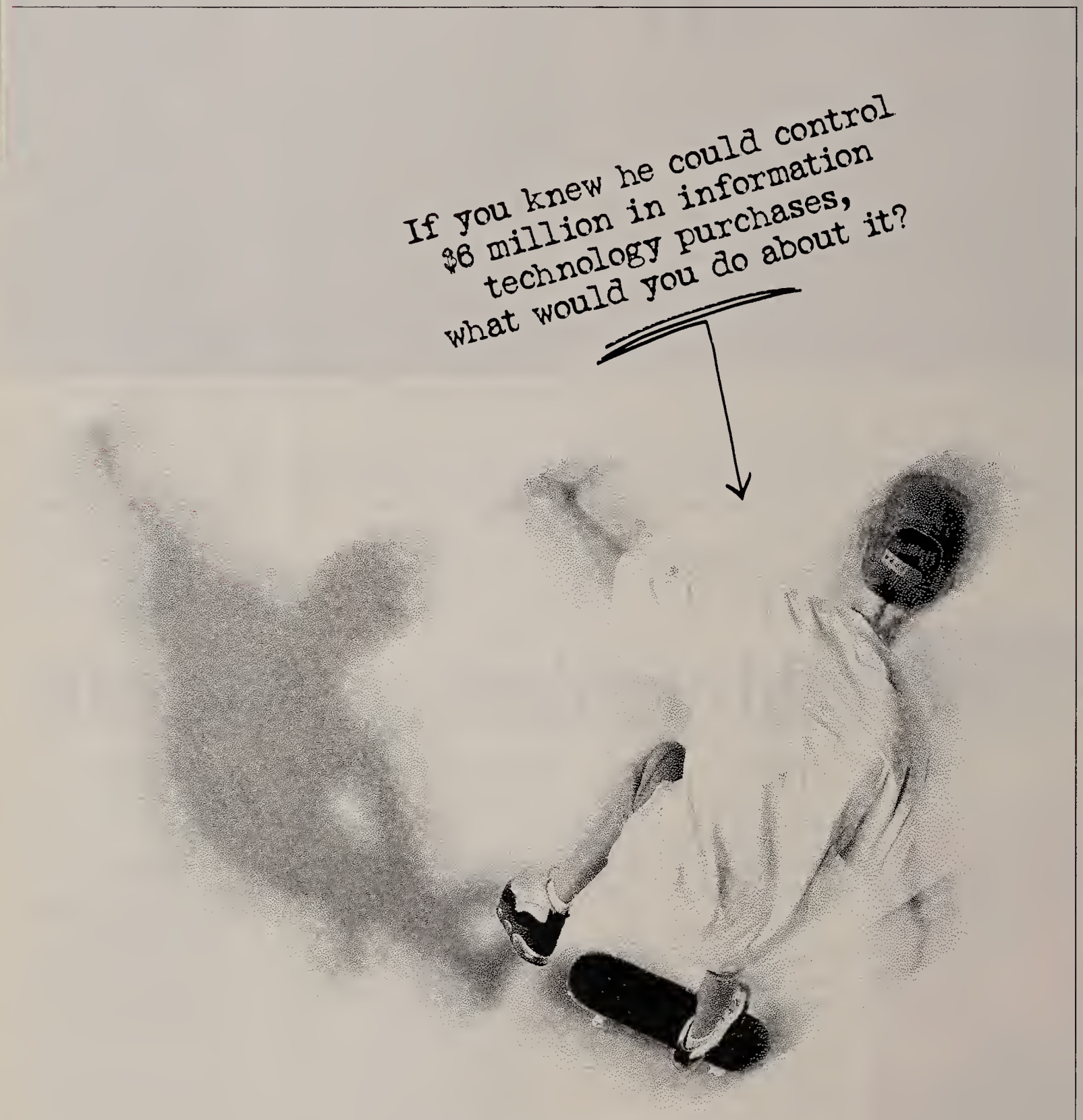
'We don't need no stinkin' data!'*

Well, of course we do — and that's why these books were penned.

Most of the tomes in this batch are meant for heavy-duty database techies who need their skills tweaked in specific areas. Real beginners need not apply — and don't bother stuffing your boss' pumpkin with these, either.

* As overheard at a DBMS show – really

First up are books about Oracle products and architectures. All are published by Oracle Press, a division of Osborne/McGraw Hill in Berkeley, Calif.



America's schoolchildren. Over 53 million strong. All with the potential to become your customers and employees. But they'll never be able to buy from or work for you unless they understand technology. The answer? Support Tech Corps. A grassroots effort to enhance teaching and learning through technology. And give students the proficiency they need to become the customers and employees you need. Discover the rewards of becoming a Tech Corps Corporate Sponsor.
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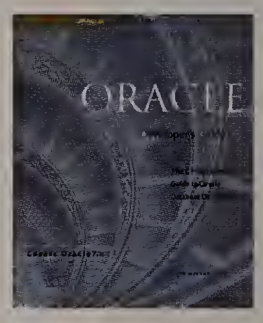
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Cellular Telecommunications Industry Association Foundation (CTIA), Digital Equipment Corporation, and MCI Foundation

Book reviews

Oracle PL/SQL Programming **by Scott Urman; 585 pages, $34.95 (softcover).**

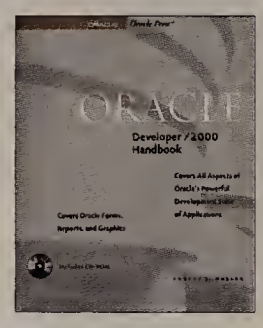
The book has tips and techniques — and a mountain of code — for developing applications built on the Oracle7 server using the PL/SQL language. PL/SQL is Oracle's extension of the veritable SQL standard. Contents include syntax and constructs, error handling, testing and debugging, performance and tuning.

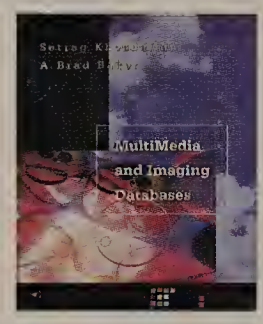


The Oracle Developer's Guide **by David McClanahan, 794 pages, $34.95 (softcover).**

This is meant to be an all-singing, all-dancing guide to developing applications using the Oracle7 relational database management system. It does assume that the reader has a background in C and a basic understanding of SQL, according to the book's jacket.

But wait, there's more. Other books in the Oracle Press series include *Oracle: The Complete Reference*, *Oracle Workgroup Server Handbook*, *Tuning Oracle*, *Oracle DBA handbook*, *Oracle Backup and Recovery Handbook* and *Oracle Power Objects Handbook*. Some, such as *The Developer/2000 Handbook*, come with a CD-ROM.





Multimedia and Imaging Databases **by Setrag Khoshafian and A. Brad Baker; Morgan Kaufmann Publishers, Inc., San Francisco; 586 pages, $44.95 (softcover).**

This one has a definite college textbook look and feel, but it is well-illustrated and easy on the eyes. Topics include a discussion of the kinds of database architectures — network, relational, hierarchical, object-oriented and multimedia; graphical user interfaces; integrating data, hypermedia and imaging; querying and content retrieval; storage management; and networking.

— Reviews by Johanna Ambrosio

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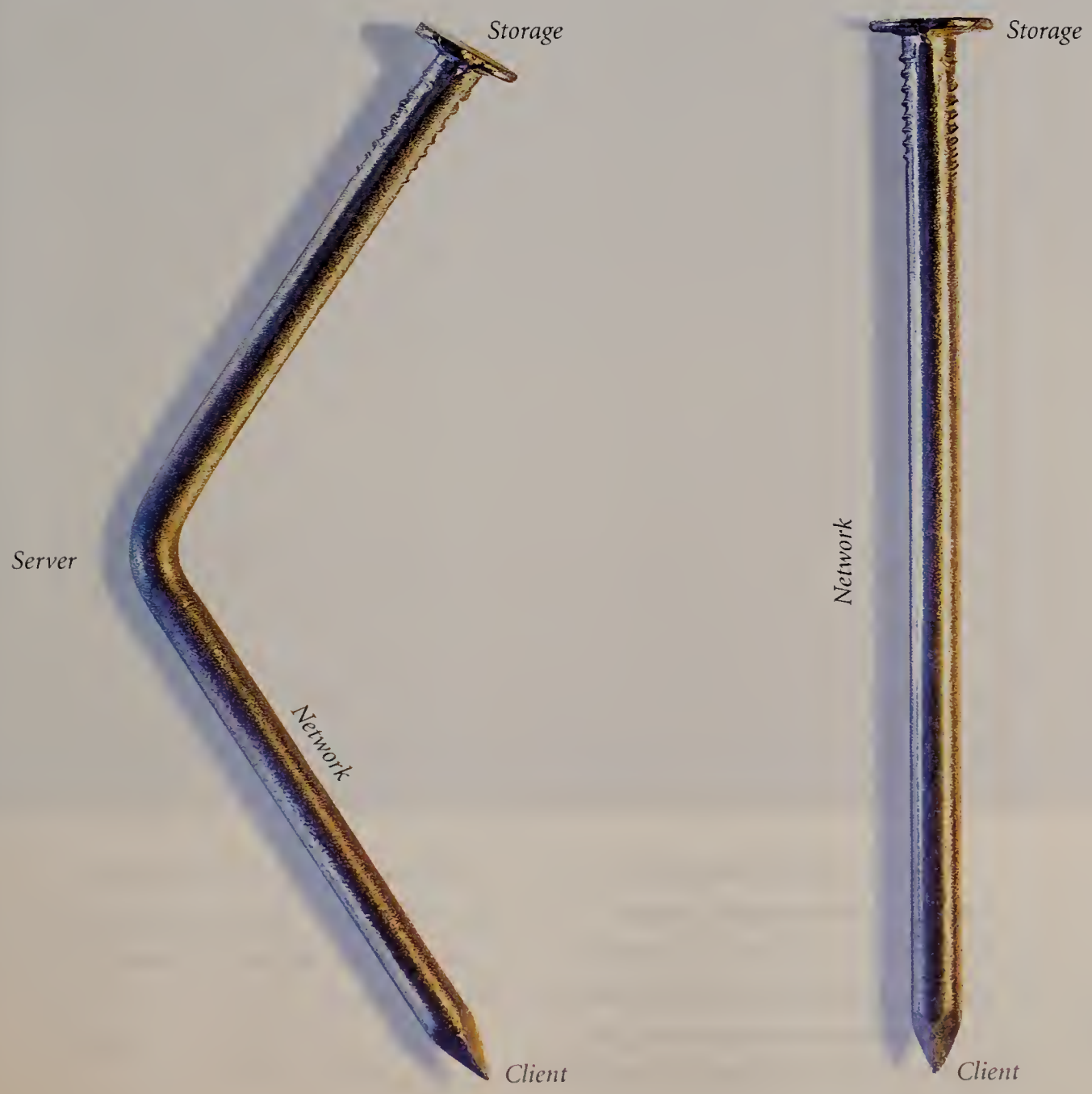
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Developers can control Java access with firewall

By Frank Hayes

Corporate developers are finally getting some help selectively filtering Java applications through the firewalls that protect corporate networks.

CheckPoint Software Technologies Ltd. in Lexington, Mass., plans to ship by the end of the year a version of its market-leading FireWall-1 that will let network managers choose from three levels of access for programs written in Java, Sun Microsystems, Inc.'s Internet language.

"Most firewalls basically give you two options [for Java] — on and off," said Richard Perlotto, corporate network security manager at VLSI Technology Corp. in San Jose, Calif.

Corporate developers building Java applications only for internal use haven't needed that flexibility, users said. But for developers creating business-to-business applications, the lack of a standard for Java to communicate through firewalls has been a major problem.

"That's more important to us than any one security bug in Java because it will affect large-scale deployment," said Tom Boos, vice president of information technology at the Coris division of R. R. Donnelley & Sons Publishing Corp. in Chicago. Coris is building a Java-based system for customers to deliver printing jobs to R. R. Donnelley across the Internet.

Sun, which controls Java-related specifications, hasn't yet nailed down standards for Java to work through firewalls. But the company worked with CheckPoint to define multiple levels of Java access for FireWall-1 3.0.

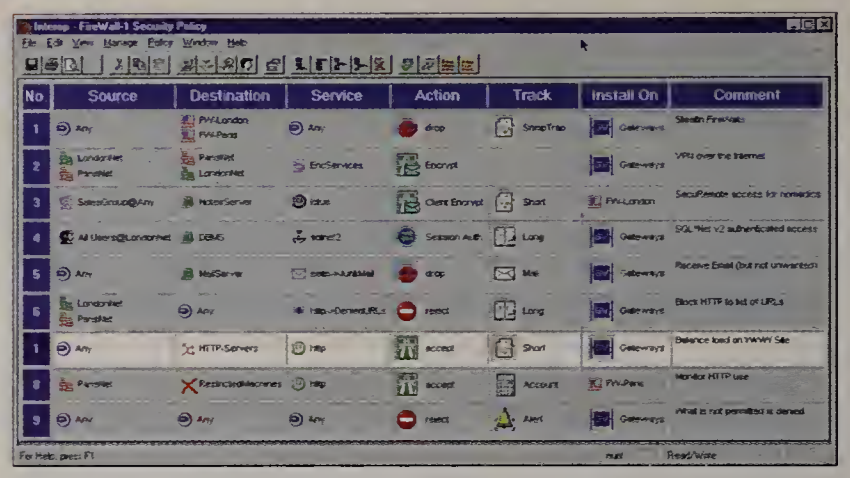
This version also lets users add software to check downloaded programs and electronic mail for viruses as they pass through the firewall. Virus-checking vendors, including McAfee Associates, Inc., Symantec Corp. and Cheyenne Software, Inc., said they will build virus-checking software that will plug in to the firewall.

"We already run virus checkers on our file servers, but it would be nice to catch those things when they come through [the firewall]," Perlotto said.

The plug-in security approach may also help in the future to check for hostile Java applets that exploit holes in Java security, officials at CheckPoint said.

With this release of FireWall-1, administrators can limit applets to be downloaded only from trusted sources. JavaSoft is also working on support for authentication in Java applets, similar to the digital signature system used by Microsoft Corp. for ActiveX component security.

FireWall-1 3.0 is slated to ship by the end of December. Pricing hasn't been set, but it is expected to start at about $4,500.



FireWall-1's visual tool set *lets network administrators control access for Web pages, Java applets and E-mail*

Visual Basic upgrade targets 'net

Control Creation Edition supports ActiveX controls

By Sharon Gaudin

Microsoft Corp. is getting ready to release a new member of its Visual Basic family.

The Control Creation Edition will ultimately be part of Visual Basic 5.0 and will be targeted at building ActiveX controls. This edition is the latest step in Microsoft's move to take its popular Visual Basic development environment onto the Internet.

At a Visual Basic users conference last month, Microsoft made several Visual Basic 5.0 announcements.

Active server

Microsoft gave about 2,000 Visual Basic developers a preview of coming enhancements, including the ability to create active documents that sit on the server and can be accessed by a browser or client.

The company also announced the addition of an active server, which is software that sits on the Internet server and dynamically creates World Wide Web pages in response to queries.

Dan Mezick, a Visual Basic trainer for New Technology Solutions in North Haven, Conn., called the Web-powered version of Visual Basic a "bridge to the Internet" for the approximately 4 million Visual Basic developers who now may not need to learn a new language to write Internet applications.

Version 5.0 may give ActiveX a needed shot in the arm, said Karen Boucher, an analyst at The Standish Group International, Inc. in Dennis, Mass.

Microsoft is "trying to get people to adopt ActiveX functionality, and people have said it's difficult to work with. It's sort of turned them off from the whole process of ActiveX. They've been waiting for it to get more visual," Boucher said.

Much like the standard and enterprise editions of Visual Basic, this edition will have a specific use in the Visual Basic development environment, said John Roskill, head of the Visual Basic division at Microsoft. Control Creation will enable developers to build only ActiveX controls. It won't be able to build stand-alone applications.

Internet development

"This is doing for ActiveX control creation what Visual Basic did for Windows applications," Roskill said. "Creating ActiveX controls is still fairly difficult to do. This means anybody who's a Visual Basic developer can create an ActiveX control through visual drag and drop."

> "This is doing for ActiveX control creation what Visual Basic did for Windows applications."
>
> —*John Roskill, Microsoft*

Pared down

The Control Creation Edition is slated to go into beta testing the first week of November and will be released with Visual Basic 5.0, which is expected at the beginning of next year.

The Control Creation Edition is being pared down from the general release of Visual Basic, Roskill said.

Report writer and high-end database functionality, for example, have been eliminated from this release. The edition will take up 5M or 6M bytes of space, so users can download it in about 15 minutes instead of the hours it takes to download a full 50M-byte version of Visual Basic 4.0 or 5.0, he added.

Databases

CONTINUED FROM PAGE 55

data]." First Chicago expects to start working with a beta-test version of Universal Server next month, she added.

Universal Server was shipped to a batch of beta users in early October and is scheduled for general availability in December. IBM last summer released a developers kit that supports multimedia extensions for its DB2 database. Oracle Corp. and Sybase, Inc. are promising to field new databases with plug-in capabilities next year (see story, page 55).

Oracle's "cartridge" technology is already available for linking object-based modules to its Internet server software. The cartridge concept looks to be "a neat way of encapsulating objects that I can mix and match" in order to speed up development and incorporate different types of data into applications, said Michael Prince, MIS director at Burlington Coat Factory Warehouse Corp. in Burlington, N.J.

Morgan Stanley & Co.'s market risk group in New York plans to use Universal Server to add relational underpinnings to a time-based analysis application that now runs on the Illustra object database. Informix bought Illustra last year and is blending the technology with its relational database to create Universal Server.

Harry Mendell, a vice president in the market risk unit, said the application is too unwieldy for a regular relational database. But with Universal Server, Morgan Stanley expects to be able to keep time data in object form while tapping into the parallel processing and standard SQL access capabilities of relational software, he said.

Mendell cautioned that object-based technologies such as Illustra's DataBlade aren't easy to grasp. "We got results right away, but it took us about six months to really appreciate and understand [the technology]," he said.

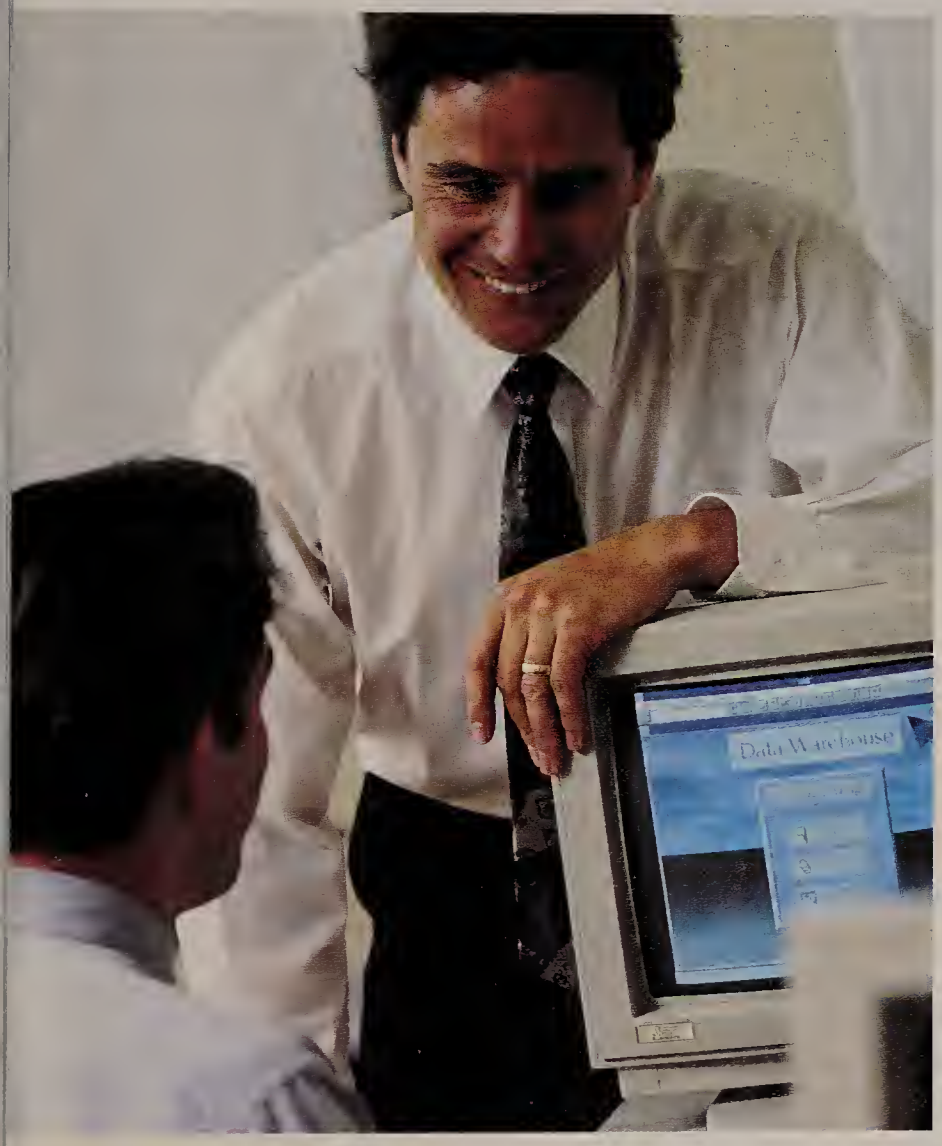
First Chicago wants a beta copy of Universal Server mainly "to get a better idea of how this works," Anderson said. "For most of us who have worked with record-oriented data all these years, this is a hard concept to understand."

The company hopes to rely on DataBlade plug-ins developed by Informix and other software vendors to free it from having to build its own, she added.

> "We got results right away, but it took us about six months to really appreciate and understand [the technology]."
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> —*Harry Mendell, Morgan Stanley*

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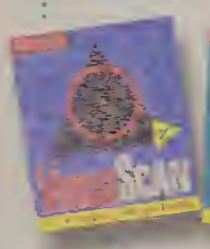
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*Based on 1000 nodes, 50 applications



Security Management



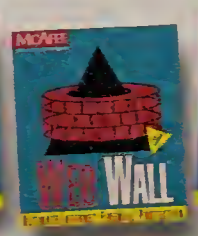
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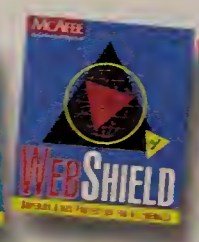
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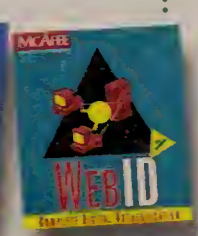
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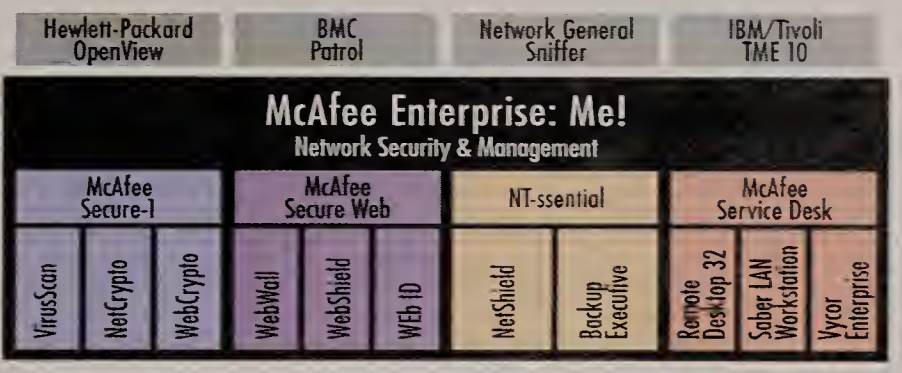
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Web challenges Notes development

CONTINUED FROM PAGE 55

customer service communications to the outside world.

Lotus itself has changed pace. The Cambridge, Mass., firm has already released Domino, a Notes server that natively supports Hypertext Markup Language, and by next year, it will deliver a server built completely on Internet standards and protocols that offers Notes functionality.

Users can run Web browsers instead of the bulkier Notes client, and Web developers can gain some Notes features, such as replication, without learning Notes programming. Although FedEx started work on FedEx Ship for Notes long before Lotus announced Domino, several vendors now offer Web-based services developed on and controlled by a Domino server.

For example, BancOne Financial Card Services lets users issue and track customer service requests from their Domino-based Web pages, and Countrywide Credit Industries, Inc. lets customers submit loan applications to be processed by the Domino server.

Notes developers still are a hot commodity on the market, with companies searching far and wide for these skills. A search through Usenet newsgroups job listings found nearly 600 requests for Notes developers in the past three weeks.

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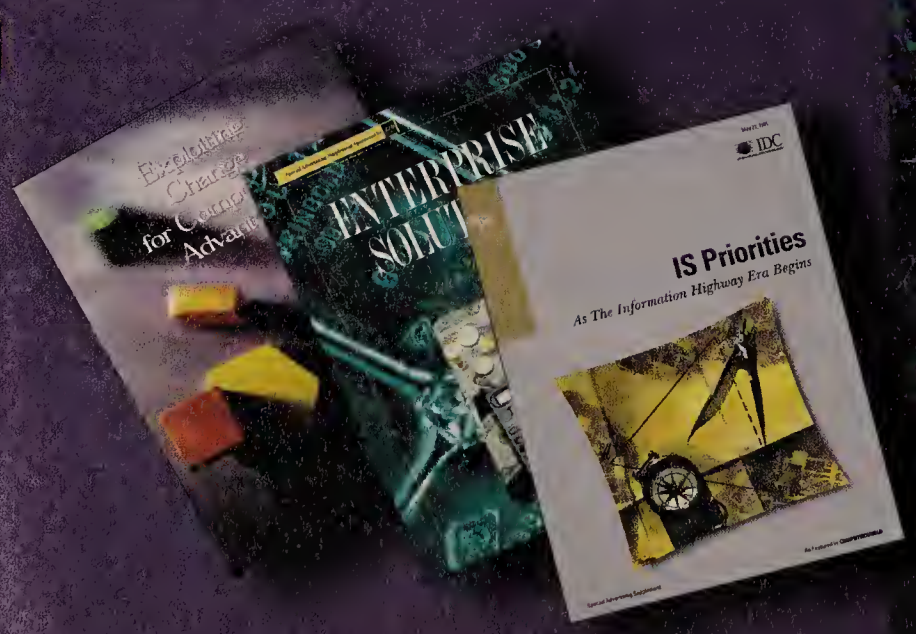
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Your technology solution delivered by the brand IS trusts



New Products

Grolier Interactive, Inc. has announced the 1997 Grolier Multimedia Encyclopedia, a CD-ROM that includes links to related Internet sites.

According to the Danbury, Conn., company, an atlas and a customizable interface are included, along with 60 hours of Internet access.

The product costs $49.95.

▶ *Grolier Interactive*
(203) 797-3530
www.grolier.com

PureSpeech, Inc. has announced Juggler PC, a telephony voice assistant.

According to the Cambridge, Mass., company, the software speaks and listens to natural voice commands so users can call by telephone or talk into a microphone to conduct messaging functions. It combines a voice-mail system, universal in-box, speakerphone and address book.

Juggler PC costs $149.

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California Scientific Software has announced BrainMaker/32 Professional, a Windows 95-compatible program for engineering applications.

According to the Nevada City, Calif., company, BrainMaker is used for optimal control, enzyme synthesis, optical character recognition, coding and decoding and speech recognition.

BrainMaker Professional costs $795. Current users may upgrade for $250.

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·Leadership Series·

BY ANN SENN

The Hidden Traps of IT Transformation



Gotcha!

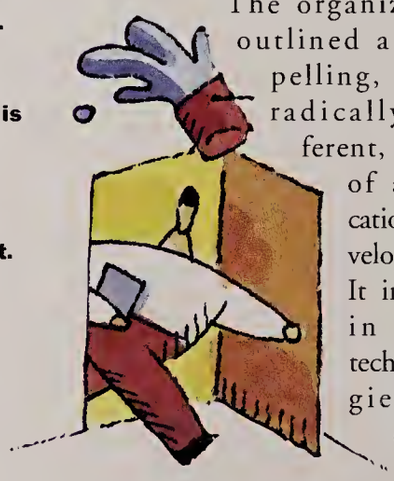
Even the best CIOs can get caught in hidden traps. Here's how to find these pitfalls before they wreck your mega-projects and sabotage your reputation.



CIOs know they must communicate their vision. What they don't realize is how many times they need to do it.

After years of IT consulting, I've heard dozens of good stories that executives won't tell in polite company. Here's one that I witnessed firsthand:

The IS organization of a major retail chain wanted to deliver new systems to the business more quickly and cheaply. The organization outlined a compelling, albeit radically different, vision of applications development. It invested in new technologies and development methodologies. It trained employees in new techniques. Yet the vision wasn't working. The CIO was stumped. All the projects slated to use the new technologies, methodologies and newly trained employees had longer development schedules than similarly sized projects using the old methods.



It turned out that the organization was completely driven by deadlines and fear. IS managers were evaluated by whether deadlines were met or exceeded. Fear of failure was rampant throughout this organization, and failing to stay on schedule was viewed as the greatest sin of all. Given their unfamiliarity with the new tools and technologies, IS managers played it safe. They committed only to ultraconservative delivery schedules. They were using the new tools to do things the old way — and slower.

This IS organization is not alone in its struggles to transform itself. IT transformation has gotten a lot of bad press recently, and for good reason. Barriers to successful IT reinvention are all around you, and they can stymie the best people working in our industry today. These barriers include everything from the inability to find a savvy visionary who can design an effective architecture (talk about a rare and expensive bird!) to trying to retrain the IS organization while keeping corporate users happy.

Many of these pitfalls are expected and well-documented. Any smart CIO plans for them. But here are a couple that, in my experience, tend to surprise even the most experienced CIOs. Motivation and communication, not technology, are the springs and triggers of these hidden traps.

The Paradox of Insufficient Overcommunication

You've held meeting after meet-

Illustrations by Robin Jareaux

ing. You've distributed dozens of versions of the IT transformation plans. Yet people still seem unclear about some very basic aspects of this carefully constructed and widely discussed plan.

What to do? Expect it. And keep talking.

CIOs know they must communicate their vision. What they don't realize is how many times they need to do it. Repeating yourself two, five or 10 times isn't good enough. You must repeat yourself 20, 30, 50 times; every day, every meeting.

Call it denial on the part of your employees and managers. Call it fear. And, yes, it is difficult to force yourself to endlessly repeat your message. But doing so will signal your absolute determination that this *will* happen. More importantly, patient repetition of the basics gives people time to digest the magnitude of the changes and understand their role in the transition.

One brilliant CIO was frustrated and bored with having to repeat things week after week. Yet six months after he reorganized his IS group, the director of applications development still could not describe how applications would be developed under the new regime. And she wasn't alone. There were pockets of people throughout the IS group who believed that if they just kept their heads down, this too would pass. Not a surprising conclusion, since he was their third CIO in three years.

This CIO needed frequent pep talks to convince him that constantly reiterating his vision would pay off. It took a full year before the "big picture" was widely understood and accepted. At the eight-month point, IS headed into a major systems implementation using the new processes, basically on faith and under orders. But once the system was deployed, and IS turned to the next big project, the place suddenly lit up. They got it! Project team members could describe the process they used for the last implementation. They saw how to apply the new processes to the next project.



IT transformation:
Systematically implementing fundamental changes in the IS organizational structure, tools and methods to radically improve IS responsiveness, agility, efficiency and value to the business.

What's the saying? "Tell me once, and I will hear you. Tell me twice, and I will listen. Let me do it, and I will understand."

Insistence is the only way to get your staff to do something they don't fully understand. But once they do it, they will finally comprehend what you were talking about.

Change Agents Who Can't Change

Opposition can come in three forms: constructive criticism, open confrontation or quiet subversion. Whatever the form, it is never easy to deal with. But in my experience, the most serious obstacles to change are the people who say they agree with your plans but privately won't commit to getting the job done. They don't openly rebel; they quietly subvert.

One company ambitiously decided to take an all-or-nothing approach and completely rebuild its systems, core technology, infrastructure and IS organization.

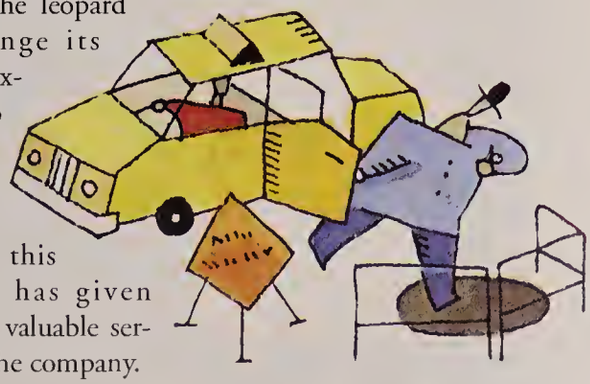
One of its IS executives seemingly accepted the mission of dismantling the company's legacy systems and converting the systems maintenance team to the new architecture. But while this IS exec had helped set the new direction, he had trouble coming to terms with his role in the transformation — in particular, the idea that the size of his kingdom was going to decline over time. His self-worth was measured by how many people he managed.

So each year, despite the fact that several more of the new systems were implemented, he argued persuasively that legacy staffing needed to remain constant. He quietly resisted the new direction.



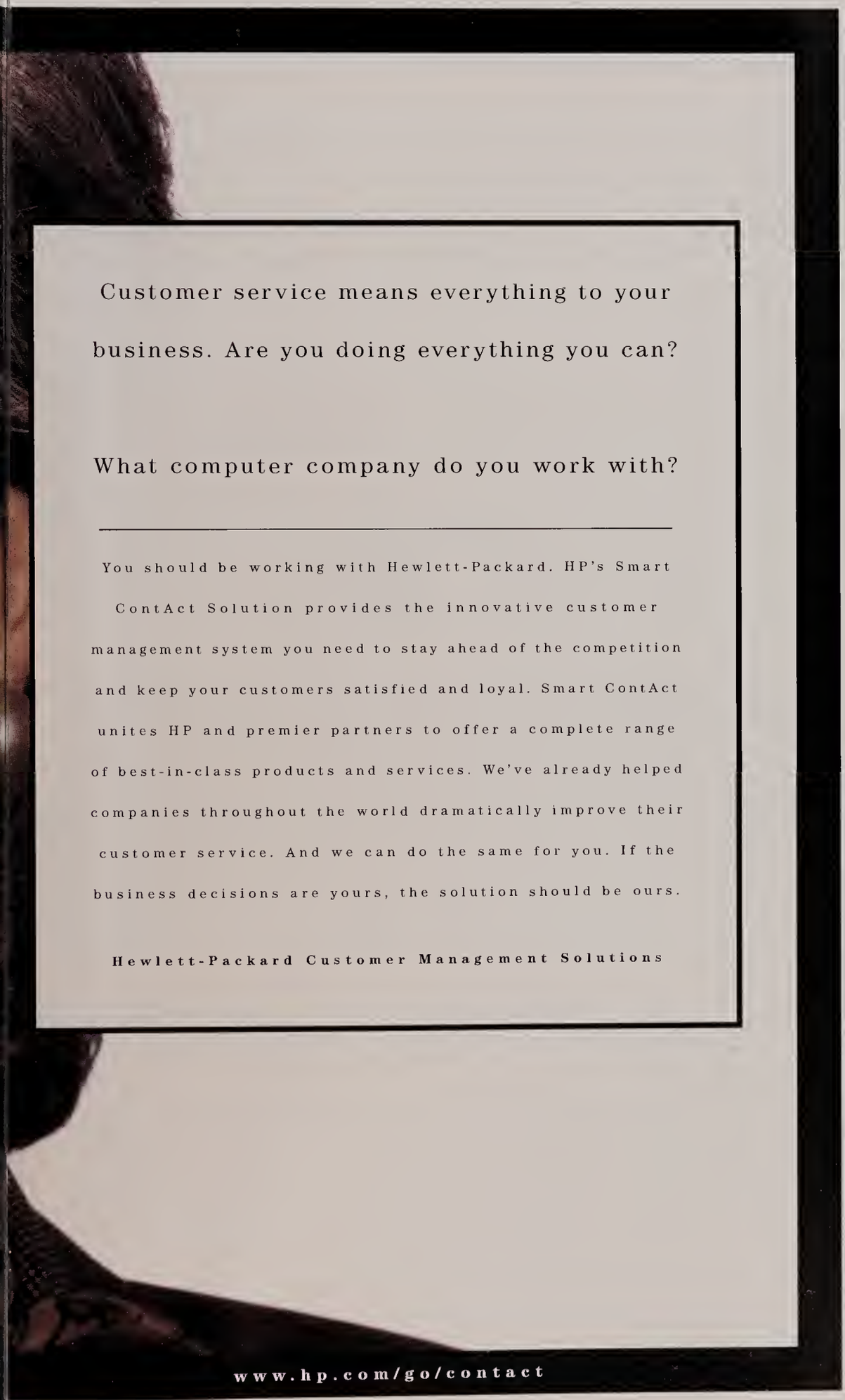
Watch for people who display inconsistent behavior, managers who say one thing but seem to do another.

The solution? Watch for people who display inconsistent behavior, managers who say one thing but seem to be doing another. If you find them, don't expect the leopard to change its spots. Expect to take a tough stand, even if this person has given years of valuable service to the company.





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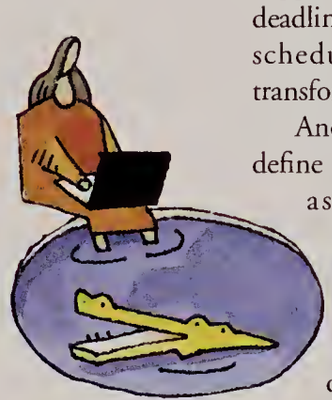
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The Dilemma of Conflicting Directives

Sometimes, well-intentioned people are innocent resisters. These people are caught in what I call a directional dilemma — they are asked to go in one direction, but are given strong incentives to go the opposite way. The result is a sidetracked transformation effort. That's what happened to the firm that was deadline-driven. Fear of missing schedules sabotaged the IS transformation effort.

Another company set out to define business processes, such as taking a customer's order, that were common to all its divisions. It set up enterprisewide process design teams, drawn from IS and business, to develop the common processes.

But the team designed each process with dozens of variations because each division's or office's individual practices supposedly required them.

What went wrong? It turned out that the business members of the team were concerned about what would happen when they returned to their regular jobs after the re-engineering work was done. They were afraid of being blamed for massive, disruptive changes in their colleagues' work lives. These employees took the safe, but extraordinarily inefficient, path of giving up on finding common ground between divisional operations.

Management can't solve this problem by firing offenders, because management created the problem. The solution is to look for incentives and punishments that clash with your new goals, remove them, and create new evaluation and reward structures.

Division management at this company solved its problem by publicly supporting the goal of defining "common processes" across divisions. They followed up by promising project team members they would have new jobs that were equal to or higher than the ones they had left.

Management at the deadline-driven firm changed its date-setting process. For the first time, developers and development managers had a say in setting the deadline for the project as a whole. IS managers

Trap Talk

Looking for hidden traps? Listen for these words of warning:

1. "What's the big deal?"
To get motivated, people need to understand why they must change what they are doing today, and when they need to do so.

2. "What's different?"
IT transformation requires a complete, compelling vision and widespread understanding of that vision. Plans that lack clear targets, benefits and the baby steps to success won't gain support.

3. "Superman couldn't finish this project."
People get depressed when they're asked to do the impossible. If you outline achievable but difficult steps, your project will look like a challenge, rather than a sinkhole.

4. "This is going nowhere."
Real change requires energy, momentum and enthusiasm. Plan for, achieve and celebrate quick wins. Help others see where their work fits into the big picture.

5. "This too shall pass."
Keep repeating the vision, the plans, what you are doing and what you want others to do. Be consistent. They have to believe that you are serious and committed.

6. "It can't be that important if so-and-so doesn't care."
Identify the real leaders and opinion-makers in your organization, and get them involved. Management and change leaders need to have one voice.

7. "Yeah, yeah. Can I get back to work now?"
Watch out for silent resisters who say they are committed to achieving the vision but whose actions are at odds with their words.

8. "I can't win at this game."
Get your reward programs, reporting structures and personnel evaluation mechanisms in sync with your IT transformation initiatives. Don't punish failure; learn from it.

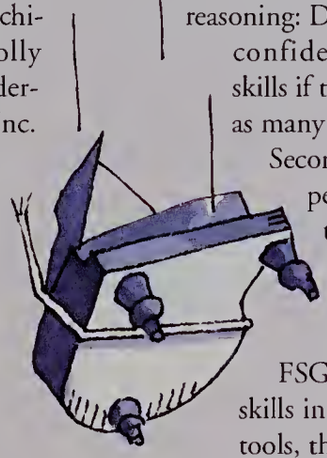
9. "No news must be bad news."
Let people know about your successes. Otherwise, they will assume things must be going badly.

10. "Been there, done that."
Press on after a few preliminary goals are painfully achieved. Don't lose heart in the middle of the battle. Remember George Bernard Shaw's words: "The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man."

Overcoming Fear of Failure at Federated

As part of a two-year transformation of its IS operation, Federated Systems Group (FSG) has overhauled how it develops its systems. Although the effort has been successful, fear of failure has posed one of the biggest barriers to change.

"It's human nature to want to do what you do best," explains Bill Smith, vice president of architecture at FSG, the wholly owned IS subsidiary of Federated Department Stores, Inc. The $14 billion Cincinnati-based retailer includes Bloomingdale's, Macy's and Burdines.



Progress has been steady, but slower than desired. After two years, only 140 of 400 developers are working with the new tools and methods. One reason: resistance to learning new skills. "We have to figure out how to get people to leap out and try something new," Smith says.



FSG has applied two techniques to reduce the fear of failure.

First, it eased the learning curve associated with these new methods and technologies by realigning developers to focus on just one "layer" in its new, multitiered client/server architecture. Some were dedicated to enterprisewide data modeling, others to client interface design, and others to developing "business rules" to reside on Unix and Windows NT servers. Smith's reasoning: Developers will be more confident in learning new skills if they don't have to learn as many of them.

Second, FSG promoted the personal reward for obtaining new skills: higher pay and better employability. Employees learn from FSG that as they develop skills in the new methods and tools, they become more valuable to FSG and the marketplace. "This is clearly a double-edged sword," Smith cautions. "However, it is better to discuss these things in the open. The conversations are happening whether you are participating or not."

FSG recently enhanced its architecture-based way of organizing the developer's work. Now, in addition to focusing on a layer of the architecture, developers specialize in a core retail business area, such as merchandising, logistics, sales or human resources — truly combining business and technical skills.

In the past two years, Smith and his team have delivered several major systems, including the world's largest bridal registry database. It allows friends and relatives to select wedding gifts at any of Federated's 451 department stores. More than 400,000 brides have registered so far. FSG also is constructing a registry site on the World Wide Web (www.wedding.com).

The new systems have been well-received at Federated Department Stores. For Smith and his team, every day has been a challenge. But this is one IS transformation that hasn't been stalled by fear of failure.

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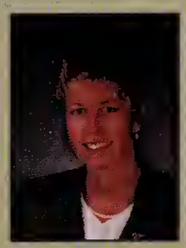
For an in-depth profile of how Federated transformed IS, see *Computerworld*'s Web site located at www.computerworld.com/leadership.

then publicly praised and supported projects using the new technologies and methods, even when, in some cases, initial schedules were exceeded.

Success Tip: Think Long-Term

IT transformation can succeed and deserves to be celebrated — as in the case of Federated Department Stores, Inc.'s successful effort (see box, above). But even if you avoid all of the pitfalls, both hidden and obvious, in transforming IS, it is still a long and difficult process. The worst problem is that it takes years, not months, to produce measurable results, and many organizations simply don't have the patience to see the process through.

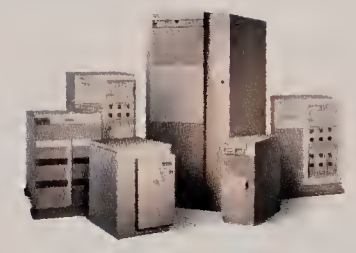
That's not a trap. It's simply the plain truth. There are no shortcuts. ◆



About the author

Ann Senn is a principal in the Information and Technology Practice of Deloitte & Touche Consulting Group in Minneapolis. For 17 years, Senn has advised Fortune 500-sized companies on the use of information and technology. She is an author and frequent speaker.

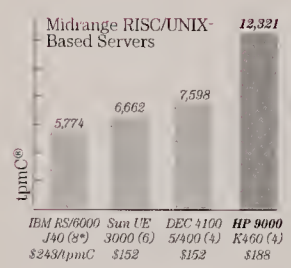
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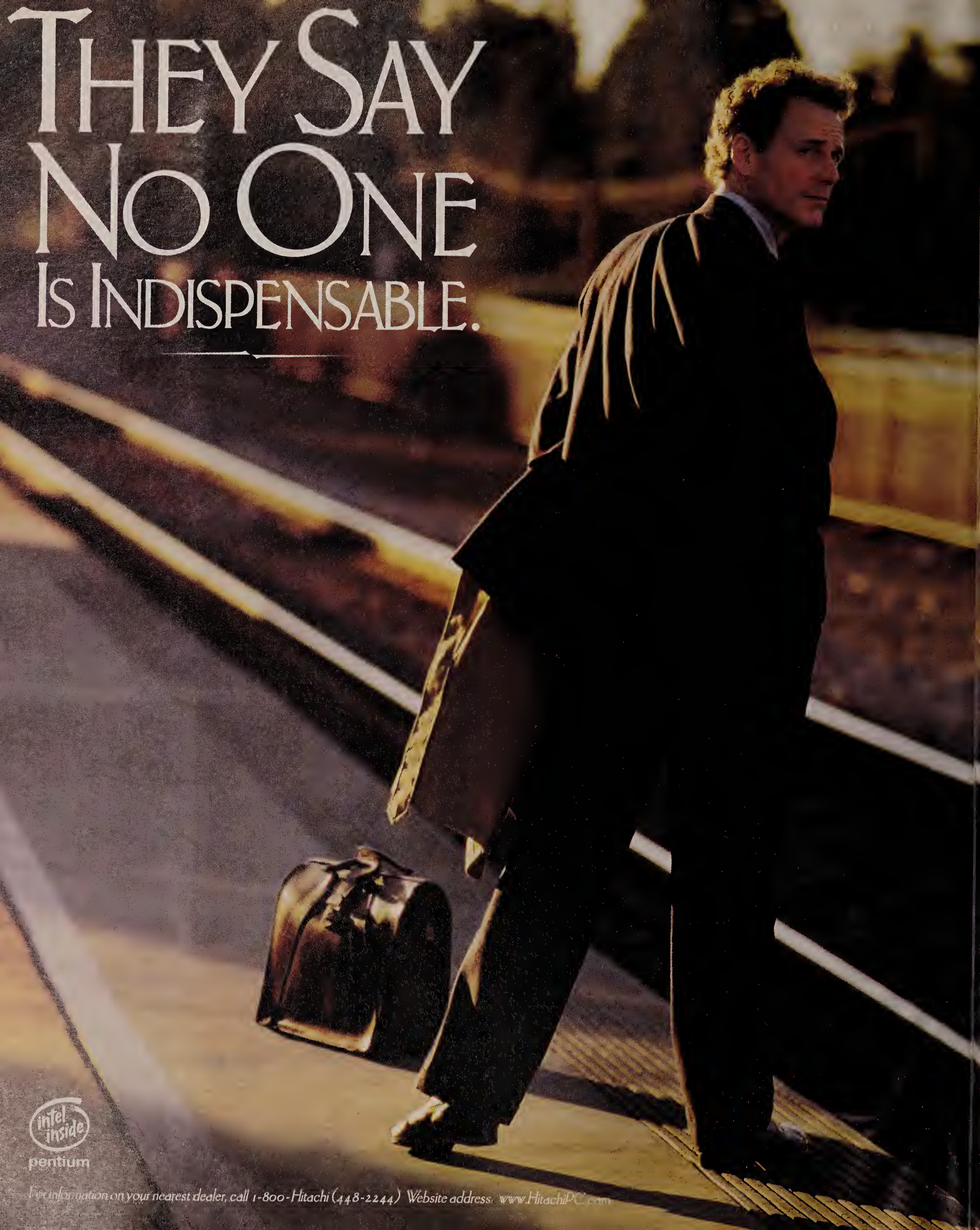
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Networld/Interop '96 attendee gets a plan for an intranet — and a new, red BMW convertible, 77

The Enterprise Network

IBM struggles for network wins

By Bob Wallace

IBM is slowly working its way back into the hearts and minds of loyal users who have long looked elsewhere for much of their internetworking needs. But the company still faces an uphill battle to win customers from more entrenched rivals.

Users typically try to buy much of their internetworking gear from one vendor to make network and vendor management bearable and eliminate finger-pointing when products fail. IBM is behind in offering users a single point of contact for their networking needs.

To its credit, however, IBM has scrambled this year to fill gaping holes in its product lines through alliances with internetworking specialists. By doing so, it has put itself back in the race with market leaders Cisco Systems, Inc., 3Com Corp., Cabletron Systems, Inc. and Bay Networks, Inc. (see chart).

"IBM doesn't even come to mind for routers and hubs, which is where Cisco and Cabletron have been the leaders," said Blair Sanders, a senior member of the technical staff at Texas Instruments, Inc. in Dallas.

"Those two and 3Com offer far more. So unless you're a true Blue customer, I can't see putting all your eggs in IBM's basket," he said.

TI in the 1980s looked to UB Networks, Inc. for hubs, to Cisco for routers and to Cabletron for switches. Cisco leads in addressing the broadest user needs, with routers, switches, remote access, Internet products and security, Sanders said.

High hopes

One IBM shop that has already invested in networking gear from Fore Systems, Inc., Cisco and 3Com still holds out hope for IBM's latest offerings.

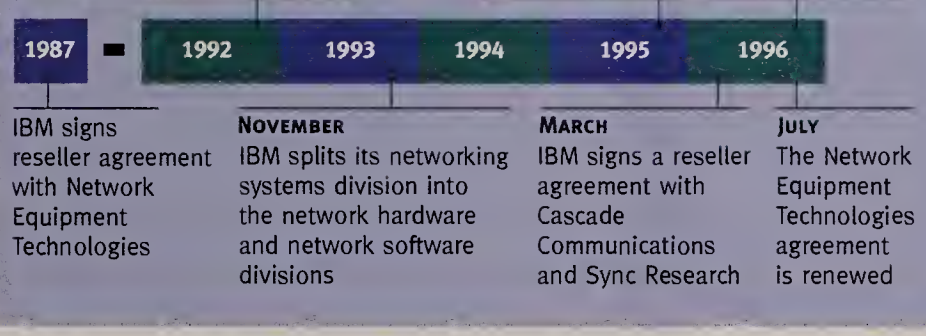
"The area IBM is still weak in is the wide area, but they've moved to address that through their alliance with [Cascade Communications Corp.]," said Jerry Wetherington, systems coordinator and networking specialist at the University of Florida in Gainesville.

Overall, Wetherington said he is pleased with IBM's ongoing efforts to expand its product line. But he is considering buying Asynchronous Transfer Mode (ATM) adapter cards for his Extended Industry Standard Architecture bus servers from a smaller vendor if IBM doesn't roll out its products soon.

IBM, *page 73*

IBM's allies

IBM has made many agreements and maneuvers over the years to help expand its internetworking product line



Telcos feel your frame pain

By Kim Girard
and Patrick Dryden

Responding to customer concerns, long-distance carriers are expanding their repertoire of management tools to track frame-relay use. But some users say the carriers aren't moving fast enough.

With the new measurement tools (see chart), customers can more confidently negotiate increases in network capacity for frame relay, which is a wide-area packet-switching technology used mostly for data transmissions.

But some users said carriers aren't moving fast enough to provide better reports or tools that could help them prevent congestion and identify usage problems in real time.

Traffic tool

Here are some tools that users – and now carriers – can run to monitor traffic through frame-relay connections

VENDOR	PRODUCT
Concord Communications Marlboro, Mass.	Network Health for Frame Relay
Frontier Software Development Chelmsford, Mass.	NetScout Manager
StonyBrook Software Bohemia, N.Y.	RouterManager/ AutoBahn and Intranet Manager
Visual Networks Rockville, Md.	Visual UpTime

Too little, too late

"Reports from carriers can be as much as a month late, and we have to translate their information to match our sites," said Vincent Miller, a senior network analyst at Washington Mutual Bank, a holding company in Seattle. "We need to take a more proactive approach because everything is happening so fast."

Sprint Corp. currently offers customers monthly reports on frame-relay use, though some demand daily access to that information, said Jim McWalters, group manager for the company's frame-relay services.

But Sprint resells Visual Network's product, Visual UpTime, which can be used to verify network configuration, measure delay and track availability, traffic flows and bottlenecks. The product is the first in a series of net-

Telcos, *page 72*

Tool manages PCs as business process

By Patrick Dryden

Large organizations searching for ways to reduce the cost and complexity of managing thousands of PCs will have yet another systems management platform to consider.

This week, newcomer MainControl, Inc. unveils an open framework called MC/EMpower that unifies all aspects of desktop hardware and software management, from procurement through depreciation. It pulls information from its application modules or existing tools to provide what analysts said is a much-needed business view of PCs and their life cycles.

Asset management

European software developers founded MainControl to build specific tools needed by large banks. The company, now backed by $6.3 million in venture capital and based in Vienna, Va., promotes MC/EMpower as an asset manager that can slash the runaway cost of PC ownership by $3,000 to $6,000 per station per year.

Analysts said MainControl's approach is worth a look, but they predicted an uphill battle for mind share against Computer Associates International, Inc., Tivoli Systems, Inc. and other management vendors.

Norbert Bueker, chief information officer at beta tester Bayerische Vereinsbank in Munich, said MainControl's application suite provided better inventory tracking, software distribution and data transfer for the bank's 1,200 stations than Tivoli-based tools.

Bueker said he liked MainControl's open approach because he can link to existing tools and add more options as the bank brings more than 20,000 PCs under central con-

Tool manages PCs, *page 77*

Data warehousing option #1: Build it yourself.

You'll have to 1) Get a relational database to hold the information and avoid burdening the centralized IS resources of your operational database. 2) Get a metadata cataloging tool to define your data sources and map them to the data warehouse. This will enable you to track where your decision support data comes from and search the contents of the warehouse. 3) Get an extraction and transformation tool to pull data from the operational database and deposit it in the warehouse. Still with us? Good. 4) Get an information access tool to bridge the warehouse to the applications currently running across your enterprise. 5) Get a query tool to reach data stored on multiple platforms and to browse data search results. And get a data analysis tool to analyze complex information patterns. 6) Perhaps it's time you took a vacation as you've probably put in a good six months by now. Of course, when you get back, you'll have to get a World Wide Web connection to allow access to your warehouse via the Internet. 7) Hand code the links between the tools to create one integrated, operational data warehouse resource. Think you're done? Hold the champagne. 8) Extract data from original operational databases and transfer it to the warehouse in raw data form. Follow that? Then let's continue. 9) Filter the information from millions of rows of data to smaller units of usable data rows. 10) Create a metadata catalog to allow information to be found easily and quickly. That *is* why you got into this mess in the first place, isn't it? 11) Update and refresh the data and data warehouse to avoid compromise of overall data integrity. Sounds simple enough. Now try doing it for nine hours a day, because that's what it takes. 12) Finally. Hire extra staff to maintain data warehouse security, integrity, component integration and vendor contact. By the way, salaries start in the high sixties.

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Telcos feel your frame-relay pain

CONTINUED FROM PAGE 69

work management tools Sprint intends to offer.

Some carriers use tools that track utilization over a 15-minute period but detail overall average use rather than the more critical information about peak use, said Steve Taylor, president of Distributed Networking Associates in Greensboro, N.C.

"What you end up with is reports that aren't useful," Taylor said.

"Typically, carriers provide reactive reports after the fact that only show general utilization statistics by hour, day and week," said Scott Meyers, network operations manager at Cargill, Inc. in Minneapolis "That's useful for capacity planning, but in a real-world environment, we need to compare throughput vs. port speed."

MCI Communications Corp.'s frame relay customers can request free daily, weekly or monthly reports via MCI Mail or a file transfer protocol server.

Within six to nine months, MCI customers should be able to generate usage reports off the World Wide Web, said Melanie Hanssen, MCI's frame relay marketing manager. The same is true for Sprint and AT&T Corp. customers.

Getting the jump

LDDS WorldCom, Inc. jumped ahead in that area by introducing its first Web-based tool that enables customers to track both voice and data usage.

The proprietary tool, called Web NMS (Network Management Service), may be used on any computer with a Web browser to retrieve performance reports for frame-relay, toll-free and dedicated access lines.

Sprint, MCI and AT&T officials said they are looking at better network management tools from vendors such as Concord Communications and Visual Networks.

AT&T now provides frame relay users weekly or monthly physical reports for $5 per port.

Roughly 70% to 75% of all customers have requested some sort of network management, said Bruce Tanzi, AT&T's high-speed services product manager.

Briefs

Tivoli, Intel team up

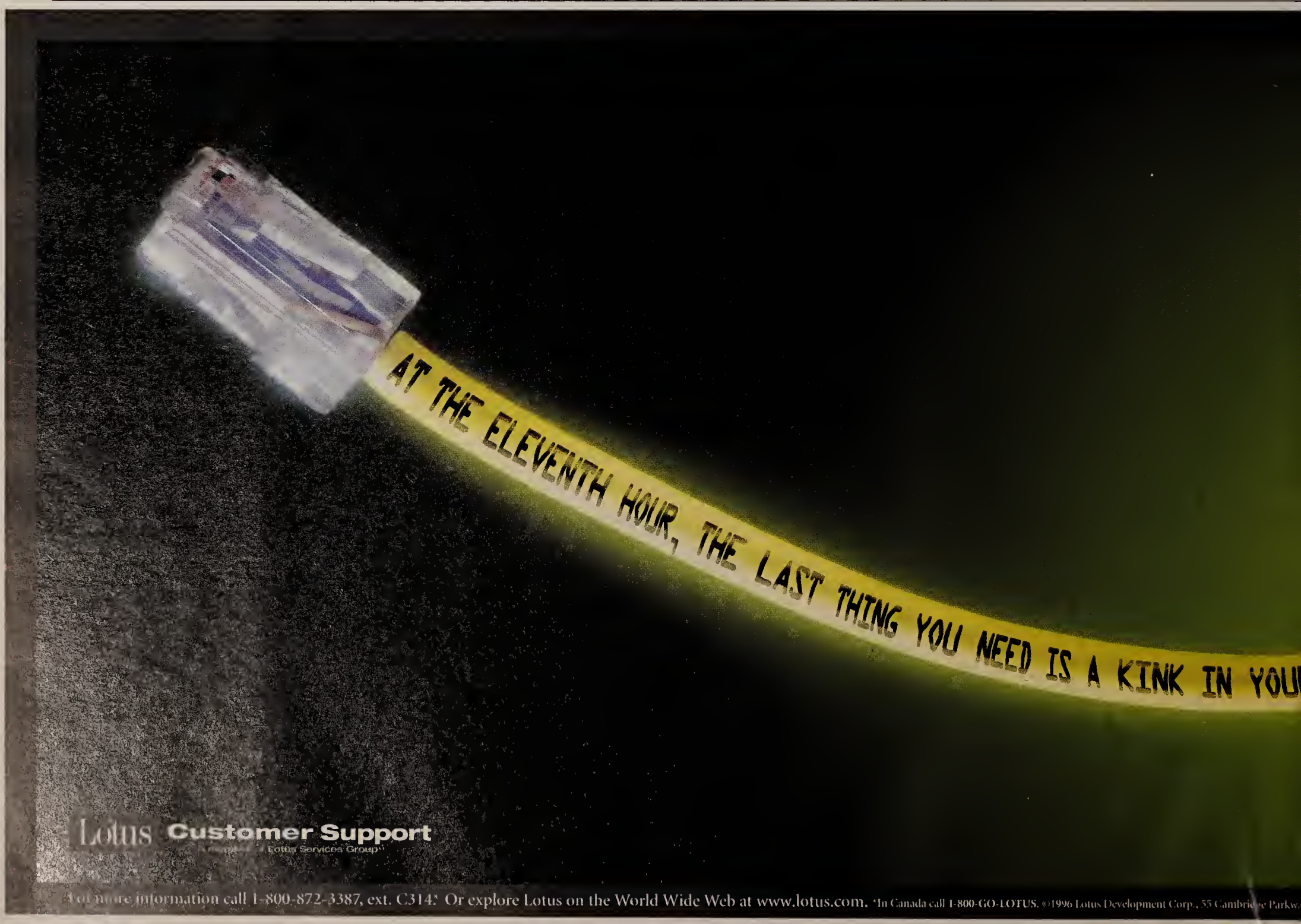
Intel Corp. in Santa Clara, Calif., and IBM's **Tivoli Systems, Inc.** in Austin, Texas, announced plans to tighten links between their respective system management products. Officials at the companies said they will integrate Intel's LANDesk LAN management software and Tivoli Management Environment (TME), IBM's enterprisewide management software. Besides adding capabilities to the already integrated desktop inventory and software distribution products of LANDesk, Intel will also integrate some configuration management functions and some other desktop management features into TME.

Frontier extends reach

Remote network monitoring vendor **Frontier Software Development, Inc.** in Chelmsford, Mass., has three new partners for its diagnostic wares. **Fore Systems, Inc.** in Warrendale, Pa., will sell Frontier's analysis software and integrate it with the Foreview management tool. **Madge Networks, Inc.** in San Jose, Calif., will embed Frontier's Token Ring monitoring agent in its Smart Ringswitch. And **Allied Telesyn International Corp.** in Sunnyvale, Calif., will sell Frontier's analysis software for use with its probes.

3Com earnings soar

Buoyed by soaring sales of LAN switching and remote networking products, **3Com Corp.** recently announced a 42% increase in total revenue and a 62% rise in net income for its first quarter. The Santa Clara, Calif., internetworking giant reported net income of $93.1 million, compared with $57.4 million a year earlier. The company's hottest-selling product is the LinkSwitch 1000, an Ethernet switch that costs less than $200 per port.



IBM struggles for network wins

CONTINUED FROM PAGE 69

"I'm fairly impressed with IBM because they're becoming more aggressive in terms of delivering useful products," Wetherington said. "They're doing everything they can to cover every base."

Another loyal IBM user opted for Bay routers years ago because he found IBM was slow to address what he thought would be his Fast Ethernet needs. But Greg Ornstein, enterprise services manager at Herman Hospital in Houston, said he is excited about the vendor's new products and swears by IBM's service and support.

"We use IBM hubs and decided to go with [its] ATM switches instead of Fast Ethernet, which made IBM's shortcomings in Fast Ethernet unimportant to us," Ornstein said. The hospital uses a Bay switch that is resold and supported by IBM.

Ornstein applauded IBM's continuing practice of partnering with other vendors to address users' broad needs.

"Even though many of the companies are smaller, they've put in the research and development to make their products attractive," Ornstein said. "And IBM has spent a great deal of time deciding which of them do the best job and allying with them."

> "IBM doesn't even come to mind for routers and hubs..."
>
> *Blair Sanders, technical staff, Texas Instruments*

Ornstein said he has high expectations for upcoming IBM products, including the recently announced Multiprotocol Switched Services (MSS), which puts the ability to route multiple protocols in its switches. MSS management tools also limit broadcast storms.

New Products

Progress Software Corp. has announced WebSpeed 1.0, development tools and a transaction server for building transaction-processing applications on the Internet and corporate intranets.

According to the Bedford, Mass., company, WebSpeed applications connect customers and business partners to corporate databases so customers can serve themselves. The development tools cost $499. The transaction server costs $22,500.

▶ *Progress Software*
(617) 280-4000
www.progress.com

Axent Technologies, Inc. has announced OmniGuard/Unix Privilege Manager, software for enterprise security.

According to the Rockville, Md., company, Unix Privilege Manager gives systems managers control of root privileges on Unix systems to prevent security lapses when many users have root passwords and root access.

Pricing starts at $1,195 per manager.

▶ *Axent Technologies*
(301) 258-5043
www.axent.com

Intel Corp. has announced an Adaptive Technology upgrade.

According to the Santa Clara, Calif., company, the upgrade reduces network collisions on both the PCI EtherExpress PRO/100 and PRO/10+ adapters.

The latest upgrade can be downloaded from Intel's World Wide Web site for free. Pricing for PCI EtherExpress PRO/100 Adapter starts at $129.

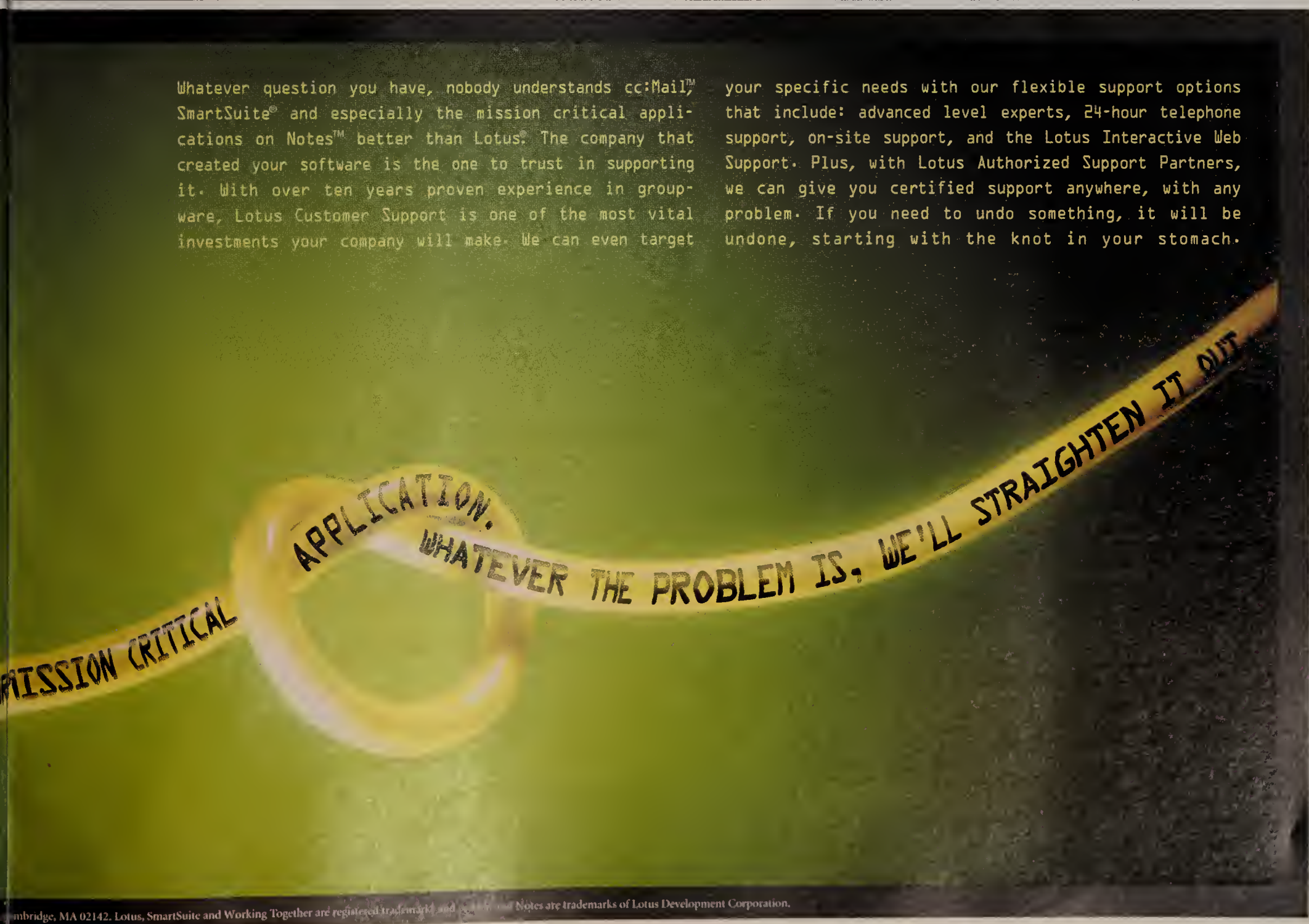
▶ *Intel*
(503) 264-7354
www.intel.com

CryptoCard, Inc. has announced the EasyRadius server to provide LAN managers with a single point of administration for remote users.

According to the Buffalo Grove, Ill., company, EasyRadius provides remote user authentication, monitoring and accounting.

Pricing starts at $3,500 per server.

▶ *CryptoCard*
(847) 459-6500
www.cryptocard.com



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Key #20109

New BMW doesn't sway choice of IntranetWare

By Laura DiDio

Paul Dutcher's decision to pay his own way to Networld/Interop '96 last month proved to be a real bonanza. The network administrator at Keesler Air Force Base in Biloxi, Miss., won a new luxury automobile and flew home with a game plan for building a corporate intranet.

Dutcher is now the proud owner of a red BMW Z3 convertible that he won in a Novell, Inc. drawing.

And after a careful inspection of IntranetWare and NetWare 4.11, he will advise Keesler officials to adopt the latest Novell packages.

Dutcher swears that it wasn't the luxury convertible but rather the ease of use and the many bundled services within IntranetWare that influenced his decision. He also examined Banyan Systems, Inc.'s Vines operating system, unbundled versions of Banyan's StreetTalk directory and Microsoft Corp.'s Windows NT Server for use with the base's intranet.



Paul Dutcher *of Keesler Air Force Base: 'I didn't need to win the car to sell me on the product'*

Dutcher is a senior airman at the 81st Communications Squadron. He manages, maintains and assists in planning the base's upgrade and migration strategy, which currently involves consolidating its "hodgepodge" of network operating systems and building an intranet.

The base's network setup includes 5,000-plus network devices and more than 3,000 users, Dutcher said.

But standardizing on IntranetWare will take some doing politically.

Intranets

Many Air Force information systems managers prefer Vines and are putting intense pressure on Keesler officials to adopt it as part of an Information Training Network that, when completed, will link 17 bases into a single enterprise network. But Dutcher and some of his fellow administrators prefer Novell's IntranetWare. Dutcher cited the ease of Novell Directory Services' (NDS) addressing scheme when compared with Vines and StreetTalk.

That Dutcher and other users are favorably impressed with IntranetWare is good news for Novell, which is trailing rival Microsoft in both technology and mind share, said Jamie Lewis, president of The Burton Group, Inc. in Salt Lake City.

"IntranetWare lags behind Microsoft's BackOffice and Netscape's SuiteSpot offerings in several key areas," Lewis said. IntranetWare, he said, won't have a proxy server, Java support and support for native TCP/IP until the middle of next year. "Given the momentum for NT Server and Netscape, Novell will have to work like hell to have a decent 'me-too' intranet strategy," he said.

In a recent Computerworld Research, Inc. survey of 100 NetWare loyalists, 77% said there was either no chance or just a slight chance that they would use NetWare as their intranet server in the next 12 months.

Green River flows

IntranetWare shipped two weeks ago. It includes the NetWare 4.11 network operating system, codenamed Green River, that is integrated with NDS and the Novell Web Server.

IntranetWare incorporates Novell's Internet Access Server; the 2.x release of Netscape Communications Corp.'s Navigator browser, with World Wide Web site authoring tools and eight-way symmetrical multiprocessing.

"IntranetWare gives me a lot more for my purchasing dollar. On Vines, if I want to send Internet mail, you need an [Simple Mail Transfer Protocol] gateway," Dutcher said.

"IntranetWare, with all the bundled LAN, WAN and Internet services, is a cool concept. And I didn't need to win the car to sell me on the product," he said.

Preferred migration path

Preferred Systems' products to ease NetWare 4.1 migrations

Product	Features
DS Standard	■ Expands Novell Directory Services (NDS) management capabilities ■ Expedites NDS disaster planning and recovery ■ Lets administrators create test NDS trees off-line ■ Minimizes interruption of end-user services during migration
AuditWare	■ Security management ■ Comparison analysis of network resources, statistics and usage ■ Documents NDS tree structures ■ Provides administrators with time line reports ■ No performance degradation

NetWare migration is on

Version 4.11, third-party tools prompt move

By Laura DiDio

The complexity associated with NetWare 4.1 migrations has given many network administrators Excedrin headaches and caused the upgrade process to stall.

In the wake of Novell, Inc.'s recent release of NetWare 4.11, an easier-to-use and more reliable version of the network operating system, many users have decided to go ahead with their oft-delayed migration plans.

And there is now a variety of third-party management and migration utilities to ease the pain of migration.

Preferred Systems, Inc. (PSI) in West Haven, Conn., is the market leader because of its longevity and close ties with Novell. PSI's flagship product is DS Standard, a migration package that lets network administrators construct test Novell Directory Services (NDS) trees off-line, ensuring that no data is lost during conversion. Competing packages include Simware, Inc.'s RexxWare migration automation tool and NetPro, Inc.'s NetPro.

"They're all good packages. They can save administrators untold management hours and mistakes," said Jamie Lewis, president of The Burton Group, Inc., a Salt Lake City consultancy.

PSI's long-term presence in the Novell market has allowed its DS Standard and AuditWare to garner about 70% of the market for NetWare migration tools, said Matt Cain, an analyst at Meta Group, Inc. in Stamford, Conn.

Users have also been deploying a raft of security and reporting tools to prevent unauthorized network access. Products in that category include PSI's AuditWare, a Windows-based reporting tool for NetWare and IBM AS/400 environments. It captures server configurations into a database and enables network administrators to query them for network statistics and usage.

Blocking access

Intrusion Detection, Inc. in New York markets Kane Security Analyst for NDS. The software package's strength is its ability to thwart unauthorized network accesses. However, the product lacks AuditWare's more general reporting capabilities, said Bob Sakakeeny, an analyst at Aberdeen Group, Inc. in Boston.

And BindView Development Corp. makes BindViewNDS. It is a DOS-based reporting tool that, unlike PSI's AuditWare, collects both workstation and server statistics.

Still, users are grateful for any improvements in the upgrade process.

"I can't even begin to offer an exact figure for the hours or money that DS Standard has saved us," said Mike Lauff, a senior technical analyst at Rohm and Haas, Inc., a polymer design firm in Philadelphia.

Rohm and Haas' network consists of 78 sites that serve 13,000 employees in 60 countries. The firm used DS Standard to create a worldwide NDS design and standardize on naming directories before the actual migration.

Tool manages PCs as business process

CONTINUED FROM PAGE 69

trol. MainControl has the right idea in attempting to fill the business-view gaps left by a lot of current management products, said Tim Wilson, an analyst at Decisys, Inc. in Sterling, Va.

Administrators can run MC/EMpower from an MVS, Unix, OS/2 or Windows NT server and interact with existing distributed management tools as agents, said Alex Pinchev, president of MainControl. The product's central database coordinates asset-management functions instead of requiring separate tools and steps.

"A workflow vision to management makes this entry interesting. It's the new concept they bring to the table," said Paul Mason, director of the enterprise systems management program at International Data Corp. in Framingham, Mass.

Time saved

Working through a unified database eliminates duplicate steps in the complex process of determining current PC capabilities, ordering new units, tracking users and serial numbers, distributing appropriate applications and reusing software licenses when it is time to get rid of the old models.

"You can glom together bits and pieces to do all this today, but it takes a lot of effort," Mason said.

MC/EMpower can succeed because "it appeals to the [chief financial officer] by providing an asset-management view instead of just system control," said Jack Maynard, a senior analyst at Aberdeen Group, Inc. in Boston.

Ties into financial accounting systems help track the value of systems discovered on the network, Maynard said, so officials can quickly ascertain the cost of a Windows NT upgrade, for example.

MC/EMpower with five modules is available now. The price ranges from $150 to $10 per managed station.

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"Official Netscape" books abound, **86**

The Internet

Missing the intranet boat

By Kim S. Nash

The best way to see payback from certain kinds of intranet applications, such as human resources systems and online corporate newsletters, is to make them available to everyone. But at some companies, a fair share of employees don't have desktop PCs — or even desks, for that matter.

What then?

Well, information systems managers must temper intranet zeal and ensure that factory floors, remote offices and retail branches don't become intranet-disadvantaged, said IS managers who have encountered this problem.

"You have to be concerned with information haves and have-nots," said Elizabeth Davidson, an intranet project manager at *The Los Angeles Times*. Even though only "a small percentage" of the 4,000 to 5,000 users at the Los Angeles newspaper lacks PC access, development of some intranet applications may nevertheless be slowed, she said.

> "People making cheese on the line don't have a PC."
>
> — Kraft's Karen Isaacson

Kiosks are one alternative. Davidson is assessing the cost of installing the stand-alone devices in the printing department and other PC-less places.

But kiosks probably won't figure in to the paper's initial intranet plans to deploy human resources and workflow applications to about 100 users this year.

The unPC

Alternatives to desktop computers:

- **Community PCs** in break rooms or other central areas might be unavailable if demand is high.
- **Internet appliances** are unproven in areas of stability and reliability.
- **Kiosks** can be expensive because they must be rugged to withstand wear and tear.

"We're just not sure how to go with that yet," Davidson said.

Kraft Foods, Inc. contemplated kiosks several years ago but dismissed the idea because of the expense, said Karen Isaacson, associate director of human resources IS at the Northfield, Ill., food company.

"It was $100,000 per kiosk at that time. You put them in 100 plants, and you still don't get the [mobile] salespeople," she lamented.

Attention-getter

The intranet idea captured Kraft's attention because of its relatively low cost, but still the company is left wondering what to do with plant-floor workers.

"There will never be 100% of employees on the intranet, but we have to get it as close as possible to realize the most savings" by not having to print

Intranet boat, *page 86*

Web eases software patches and updates

By April Jacobs

Information systems managers may find that patching and updating their users' software is a little easier — and quicker — with help from the Web.

Carlsbad, Calif.-based NetSync Corp. is introducing an application and World Wide Web site that will let users update and patch commercial software over the Web by downloading only the files that have been changed.

The WebPatch software uses version resynchronization technology to automatically compare the updated versions of applications with the user's version and update only portions of the files.

Patchwork

WebPatch can be downloaded for free from NetSync's home page at www.webpatch.com.*
What you'll need to run the software:

Processor:	386 or higher
Operating system:	Windows 95/ Windows NT 4.0
Minimum RAM:	8M bytes
Disk space:	2M bytes

webpatch

*Corporate site licenses are available; pricing is based on the number of seats purchased.

Making updates

WebPatch Online, NetSync's update database, lets users search for updates based on the software they are running and download the patches or updates in a condensed format by using the client-based WebPatch application.

Bob Mankes, president of U.S. Golf Packages in Raleigh, N.C., said his customers will more likely appreciate updates that are easier to download.

U.S. Golf Packages supplies golfers with information on golf courses around the country, including fees and weather, and lets them make reservations at courses.

Information in the software used to provide these services needs to be updated frequently.

"With NetSync, we can update our software and make it available to users through the Internet and in our application, where the data varies and it's important to keep up with current rates," Mankes said.

Susan Aldrich, an analyst at Patricia Seybold Group in Boston, said WebPatch will not only

Web, *page 82*

http:

Real uses of the Web

Internet backlash is on. A year ago, pop pundits said the Internet was miraculous and would solve all the world's problems. Now the same self-styled authorities are saying the Internet is a completely useless tangle of *Star Trek* fans, sophomoric jokes and pornography.

Reasonable people can disagree about how much business value the Internet has, but anybody who says the 'net is completely useless is easily refuted. All you need to do is find some useful things on the 'net – anything at all.

So here are some places to go on the Internet to get answers to really fundamental questions of life:

What time is it? Every once in a while, you want to set your watch accurately, right down to the second. The U.S. Naval Observatory has its master clock – the country's official timepiece – at **tycho.usno.navy.mil**. The clock is actually a network of cesium atomic clocks and hydrogen maser clocks, accurate to 100 picoseconds, or 0.000000001 seconds. The page says the USNO is in the business of time dissemination. It doesn't say whether, if you offer to pay, it will send you extra.

Where am I and where am I going? Several locations on the Web will show you local street maps of any place in the U.S. and some places worldwide and also give you driving directions from any one address to another – what roads to use, where to turn and so forth. You can find out how to get where you're going at the MapQuest site (**www.mapquest.com**) or at Travelocity (**ps.worldview.travelocity.com/PS/html/ps_driving.html**).

Should I bring an umbrella? You can get the local weather around the world at the Intellicast page (**www.intellicast.com**).

Was that an earthquake, or did a big truck drive by? The U.S. Geological Survey posts information about earthquakes around the world just a few minutes after they happen at (**quake.usgs.gov/QUAKES/CURRENT/current.html**).

Computerworld Editorial Calendar

January - June, 1997

Issue Dates	Ad Closings Color*	Ad Closings B&W	Editorial Features	Show Distribution & Ad Readership Study Issues	
Jan. 2	Dec. 6	Dec. 13	**Annual Forecast Issue** **Annual IS Jobs Forecast**		
Jan. 6	Dec. 20	Dec. 27	**Closer Look:** Melding the browser into the desktop		
Jan. 13	Dec. 27	Jan. 3	**Buyer's Guide:** Web commerce servers		
Jan. 20	Jan. 3	Jan. 10	**Closer Look:** HTML development tools **Managing:** Project management •IS Leadership Series		
Jan. 27	Jan. 10	Jan. 17	**Buyer's Guide:** Network management suites •Intranet Monthly		
Feb. 3	Jan. 17	Jan. 24	**Customer Satisfaction Quarterly:** Managers rate their networking vendors •Computerworld Financial Services Journal, •Computerworld Retail Journal	**ComNet:** Washington D.C. 2/3 - 2/6	Starch Study
Feb. 10	Jan. 24	Jan. 31	**Special Feature (Managing, In Depth, Guide):** Computer Security **Closer Look:** Risk management systems in the financial sector		
Feb. 17	Jan. 31	Feb. 7	**Buyer's Guide:** Unix RAID devices •IS Leadership Series •Computerworld Healthcare Journal, •Computerworld Telecom Journal		
Feb. 24	Feb. 7	Feb. 14	**Buyer's Guide:** PC-based videoconferencing systems •Annual Premier 100 magazine •Intranet Monthly		
March 3	Feb. 14	Feb. 21	**Closer Look:** Web usage tracking tools •100 Hot Emerging Companies magazine		
March 10	Feb. 21	Feb. 28	**Buyer's Guide:** Massively parallel servers •Global Innovators quarterly supplement		
March 17	Feb. 28	March 7	**Closer Look:** Web-oriented peripherals •IS Leadership Series		
March 24	March 7	March 14	**Buyer's Guide:** Enterprise application development tools •Intranet Monthly		
March 31	March 14	March 21	**Careers:** IS staff training survey – the companies that do it best **Closer Look:** The scalability of data warehouse products		

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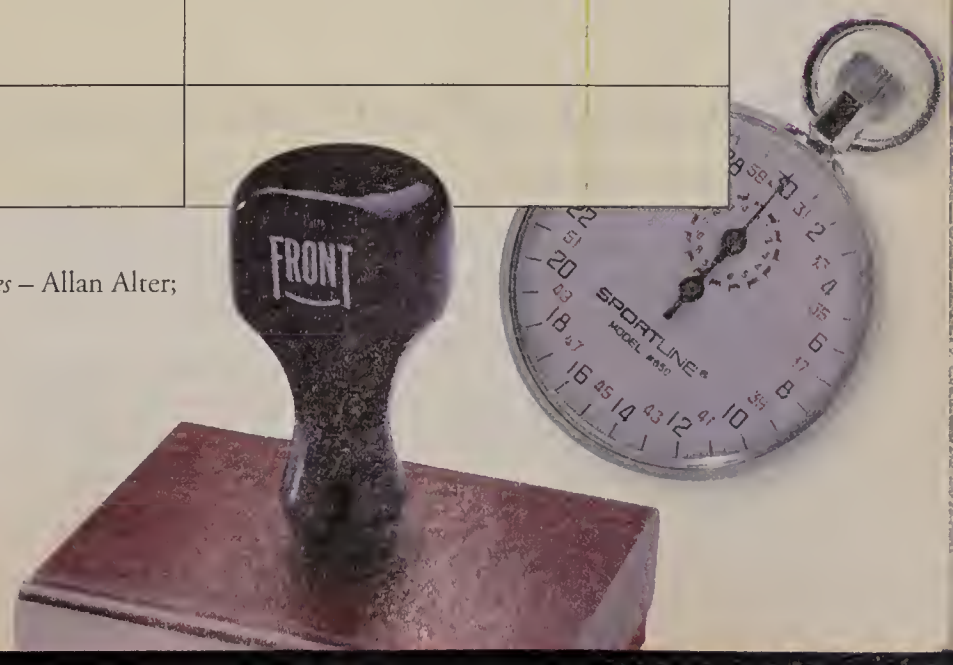
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April 7	March 21	March 28	**Buyer's Guide:** Components and browser plug-ins •Computerworld Financial Services Journal, •Computerworld Retail Journal •Campus II magazine (actual issue date TBA)		
April 14	March 28	April 4	**Managing:** Technology for customer intimacy **Closer Look:** Intel workstations vs. UNIX		
April 21	April 4	April 11	**Customer Satisfaction Quarterly:** Managers rate their software vendors •IS Leadership Series •Computerworld Healthcare Journal, •Computerworld Telecom Journal		
April 28	April 11	April 18	**Closer Look:** Sonet update •Intranet Monthly		
May 5	April 18	April 25	**Buyer's Guide:** Remote Access Servers **Managing:** Year 2000	**Networld + Interop:** Las Vegas, 5/5 - 5/9	Starch Study
May 12	April 25	May 2	**Special Feature (Managing, In Depth, Guide):** Object technology in the corporation		
May 19	May 2	May 9	**Buyer's Guide:** Enterprise DBMS •IS Leadership Series		
May 26	May 9	May 16	**Careers:** Annual Job Satisfaction Survey **Closer Look:** Beyond Visual GLS •Intranet Monthly		
June 2	May 16	May 23	**Buyer's Guide:** Web development packages •Best Places to Work magazine •Computerworld Financial Services Journal, •Computerworld Retail Journal	**Comdex Spring/ Windows World:** Atlanta, 6/2 - 6/5	
June 9	May 23	May 30	**Managing:** Reskilling the IS organization **Closer Look:** RMON – Product comparison and who's using it •Global Innovators quarterly supplement		
June 16	May 30	June 6	**Buyer's Guide:** Pentium Pro Servers •IS Leadership Series •Computerworld Healthcare Journal, •Computerworld Telecom Journal	**PC Expo:** New York 6/17 - 6/19	Starch Study
June 23	June 6	June 13	**Closer Look:** Internet Email Software •Intranet Monthly		
June 30	June 13	June 20	**Buyer's Guide:** PDAs		

Editorial Contacts (508) 879-0700: *Annual Forecast Issue* – Steve Ulfelder; *Closer Look* – Kevin Fogarty; *Buyers Guide* – James Connolly; *Managing, Leadership Series* – Allan Alter; *Electronic Commerce Journal, Premier 100, Industry Journals* – Alan Alper; *Campus Edition, Best Places to Work* – Joyce Chutchian; *Intranet Series* – Ann McCrory

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Commentary

Internet service hype

Mitch Wagner

Have you ever been the very last person to see an incredibly overhyped movie? You hear for months that this is one of the best films of the century, a thorough masterpiece. And when you finally see it, you think it's a pretty darn good movie.

And you're disappointed. If you hadn't heard all that hype, you would've liked it. But because of the buildup, a pretty darn good movie isn't good enough anymore. You expected it to be superb, and you won't settle for less.

Internet business users have been hearing a lot of hype about service guarantees in the past couple of months. If you listen to recent marketing from Internet service providers AT&T, BBN Planet and the ANS unit of America Online, Inc., you'd think that the Internet was well on its way to becoming as reliable as telephones, faxes or courier delivery.

BBN's announcement last month was fairly typical: "BBN introduces unparalleled service-level guarantee for Internet backbone connectivity." AT&T and ANS had similar announcements last month and in July, respectively. ANS called its offer a "commitment" rather than a "guarantee," but what the heck's the difference?



Manager mistake

A careless IS manager might assume that any of these companies would guarantee Internet access all the time. Your Web site will be visible to Internet users all the time. Your E-mail will get through.

Those are pretty good assumptions. Unfortunately, they're false.

In each case, the Internet service providers include more hedges, exclusions, conditions and maybes than the sweepstakes rules on the back of a cereal box.

In fact, the guarantees aren't even complete. They apply only to some of the provider's equipment. Virtually all Internet connections use equipment and services from multiple vendors.

Therefore, the limitations mean you *still* can't be sure that your Web site is visible to the world or that your E-mail message will go through.

In a particularly silly twist, the vendors won't even guarantee throughput on their *own* equipment. ANS won't guarantee that its Web sites are visible to consumers on its parent company's AOL service because AOL uses the networks of multiple service providers, not just ANS. Likewise, AT&T won't guarantee throughput between its Web servers and users of its WorldNet Internet service.

All of this is a shame because the reality of what ANS, AOL and AT&T offer is pretty good. Underneath the hype, these companies acknowledge that the Internet as a whole is prone to brownouts and service interruptions and pledge not to contribute to the problem.

It's a pity that they appear to be promising so much more, which makes what they actually deliver appear to be so much less.

Wagner is *Computerworld*'s senior editor of the Internet.

IDT to offer phone-to-phone service via the Internet

By James Niccolai
BOSTON

IDT Corp. plans to offer a service that will connect two standard telephones via the Internet, bypassing traditional carriers and charging long-distance rates as low as 10 cents per minute, company officials said.

The Net2Phone Direct service is based on the network structure of IDT's Net2Phone Internet telephone service but callers won't need a multimedia PC connected to the Internet.

User instructions

Users of the IDT service will dial a local or toll-free access number that will connect them to an inbound switch server. The call will be converted to the Internet's packet switch network and carried to its destination, where an outbound switch server will convert it back to a local telephone network, IDT officials said.

Because the long-haul portion of the call is diverted to the Internet, the cost is reduced to as little as 10 cents per minute, IDT officials said. The service will go into beta testing Nov. 1, with rollout planned for Jan. 1.

IDT, in Hackensack, N.J., is one of several companies that plan such a service, but, if it stays on schedule, it may be first to market. Analysts said the reduced costs will be attractive to consumers but that ultimately the service will challenge regional telephone companies only if IDT and others maintain high service quality.

"The price is cheap, but they have to deliver quality," said Jeff Pulver, president of Pulver.com, a consulting firm in Great Neck, N.Y. "While they're starting out and [still] small, they should have no trouble, but over time their costs could grow as they build out and update hardware."

Pulver predicted it would be six to nine months after the rollout date before service companies would update their servers.

IDT officials claimed the company is in a better position than its competitors because it provides Net2Phone to an estimated 50,000 customers and has a number of its own switch servers in place.

Global Exchange Carrier Co. in Abingdon, Va., and one or two other companies are similarly poised, Pulver said, but others gearing up Internet-based telephone services are building them from scratch.

Eventually, Pulver predicted, many larger companies will install their own gateways, and companies such as IDT will serve only home and small-office users.

Niccolai writes for the IDG News Service.

Web eases software patches and updates

CONTINUED FROM PAGE 79

make it easier to update software, but also could help ensure that updates and patches are made in a more timely and consistent fashion.

"For a user to actually update their software, it can be a difficult process," Aldrich said.

Aldrich, whose resume includes stints during which she was responsible for distributing corporate software updates, said that in her experience only half of users can complete the task on their own.

According to Aldrich, regular software updates and patches can also reduce the number of calls that corporate help desks receive.

Support costs

Susan Aldrich, a senior consultant and editor at Patricia Seybold Group in Boston, estimated that a substantial portion of the support costs for applications comes in the form of making updates and patches.

Briefs

Improved system

Netscape Communications Corp. plans to enhance its Merchant Server, the system it uses to let companies build storefronts on the Internet, by adding customization features and ties to back-end features. In Version 2.0 of Merchant Server, companies can customize views of the World Wide Web for each visitor or groups of visitors. The site will be able to track which pages users visit and steer them to pages that contain similar information. The software will also feature hooks to tie the system to back-end corporate information systems such as inventory databases and sales information. The software will be available next year.

Pushing information

A Mountain View, Calif., start-up company, funded in part by industry consultant Esther Dyson, aims to make it easy for Web users to find data on public Web sites and internal intranets. **Diffusion, Inc.** plans to release by year's end software that automatically delivers data that matches predefined preferences. The package is one of several "push" products announced recently that disseminate data to desktops rather than force users to search Web sites on their own for needed information.

Tracking hits

Htmlscript Corp. has announced that it is implementing a Caller ID-type of technology into the latest version of its Htmlscript fourth-generation language (4GL). It was designed to recognize individual visitors to a Web site. By doing so, webmasters will not only have a count of how many hits a page has received, but also how many of those hits are return visitors. In addition, the feature tracks visitors as they navigate a site. It is available immediately as part of the Htmlscript 4GL package that is priced at $495 per server.

Web scripting system

Nombas, Inc. in Medford, Mass., has unveiled ScriptEase:Webserver Edition, a simplified scripting language for Web servers. The scripting system, which works with Web servers from **Netscape** and **Microsoft Corp.**, and others that support Common Gateway Interface protocol, handles memory management, data typing and garbage collection. It also lets developers test and debug scripts remotely. ScriptEase runs on all versions of Windows, Macintosh, OS/2, Linux and **Sun Microsystems, Inc.'s** SunOS version of Unix. It costs between $145 and $1,295, depending on platform.



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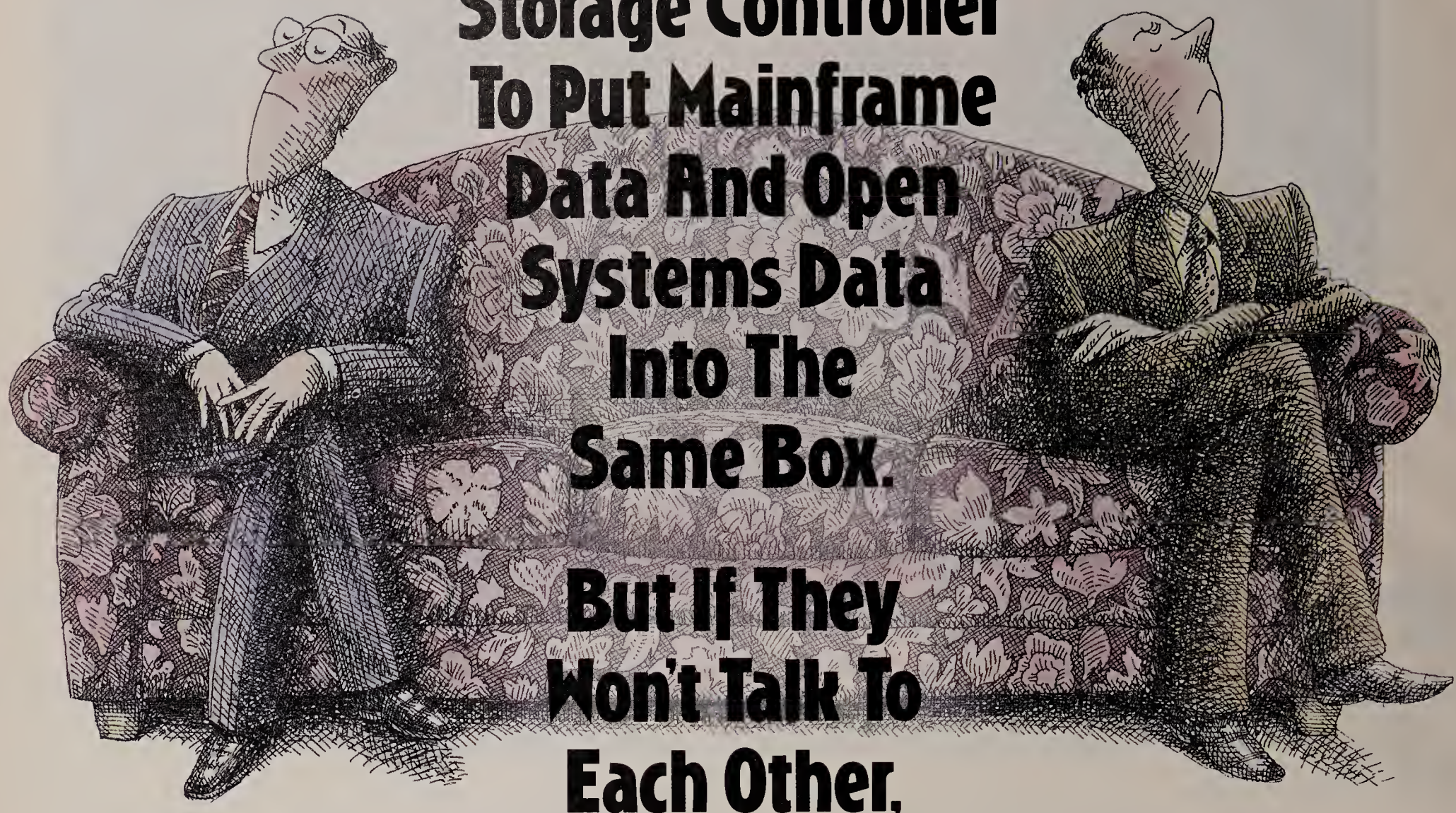
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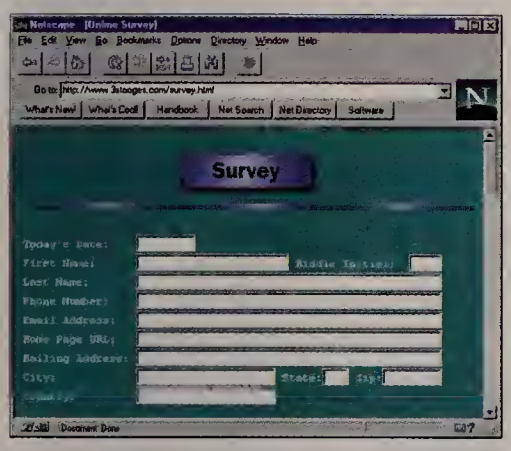
New Products

Falcon Systems, Inc. has announced FastfilePro-HA, a data access server.

According to the Sacramento, Calif., company, the product has a Hypertext Transport Protocol module that allows World Wide Web access on the same machine used for data access.

Pricing for the FastfilePro-HA server starts at $84,968.

▶ *Falcon Systems*
(916) 928-9255
www.falcon.com



Microrim's Submit This *lets users collect and manage data from the Internet*

Microrim, Inc. has announced Submit This, a World Wide Web tool kit for users to collect and manage data from the Internet.

According to the Bellevue, Wash., company, Submit This includes start-up home pages and ready-made Hypertext Markup Language forms to create sites for business, personal and organizational use.

Submit This costs $89.

▶ *Microrim*
(206) 649-5900
www.microrim.com

Great Plains Software, Inc. has announced Dynamics NetSeries, a suite of Internet/intranet applications and tools for Dynamics and Dynamics C/S+ users.

According to the Fargo, N.D., company, Dynamics NetSeries was designed to extend Dynamics financial management software securely to a company intranet and the Internet. Dynamics.View (also known as Galileo) is an interactive querying application with custom World Wide Web pages.

Pricing for Dynamics.View starts at $1,500.

▶ *Great Plains Software*
(701) 281-0550
www.gps.com

DiAmar Interactive Corp. has announced Web.Pix, a collection of stock photographs for use on the World Wide Web.

According to the Seattle company, Web.Pix photographs used on the Web don't require a photo credit.

Pricing for the product starts at $30 for 250 images.

▶ *DiAmar Interactive*
(206) 340-5975
www.diamar.com

Allen Marketing Group, Inc. has released a new version of GuestTrack software that allows flexibility in creating custom World Wide Web sites.

According to the Raleigh, N.C., company, GuestTrack assigns an identification number to a person who registers at a Web site, so the site can be personalized for that user when he revisits the site.

GuestTrack software costs $1,000.

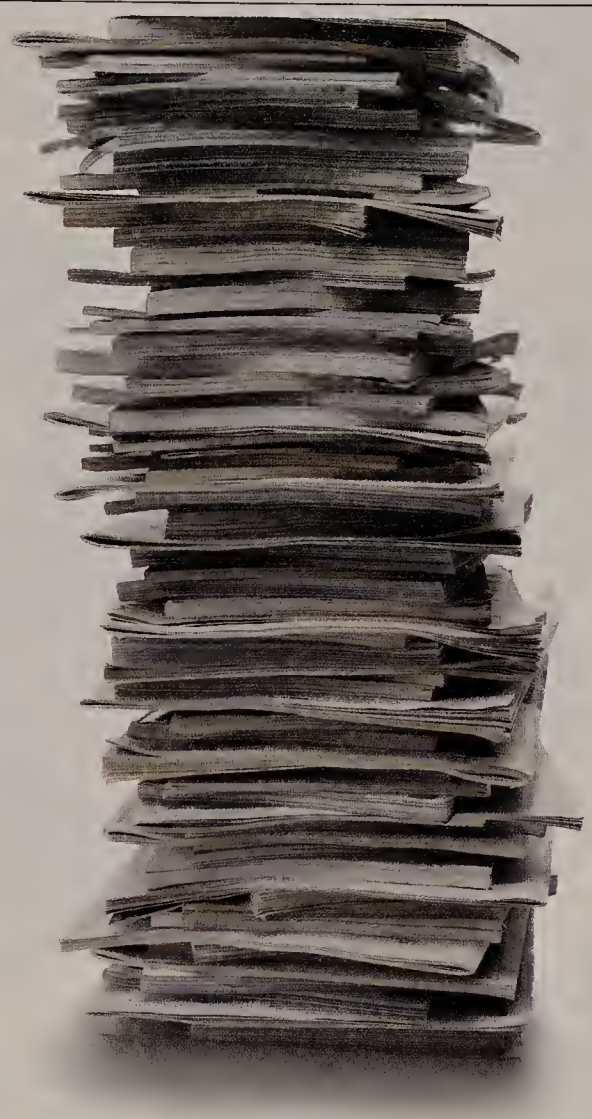
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CyberGuard Corp. has announced CyberGuard Firewall for the Intel Corp. platform.

According to the Fort Lauderdale, Fla., company, the firewall includes Multiple Virtual Secure Environments for customers to divide a single physical network into multiple virtual networks, each with a different level of security.

Pricing for CyberGuard Firewall starts at $9,995.

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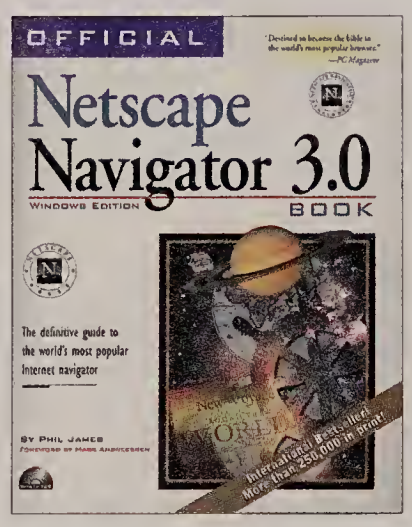
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'Official Netscape' books abound

The Official Netscape Navigator 3.0 Book, Windows Edition: The Definitive Guide to the World's Most Popular Internet Navigator **by Phil James. Ventana Communications Corp., Triangle Park, N.C.; 710 pages, $39.99 (paperback).**



Question: If World Wide Web browsers make using the Internet so easy anyone can do it with a minimum of instruction, why do you need a 700-page tome to learn how to surf?

Answer: Well, who knows? But it is such a hot market, there should be a whole series of books about it, right?

Well, sure, if you're affiliated with a browser company and are publishing under the Netscape Press imprint.

At last count, Ventana had seven "Official Netscape" books, including this basic user guide and six others on various aspects of Web publishing.

One caveat about content: These are the official Netscape guides, so competing technology, including ActiveX and Internet Explorer from Microsoft Corp., gets scant mention.

The Netscape book begins with the absolute basics (one section is titled "What is the Internet?"). But it goes on to explain how to use Netscape electronic mail, plug-ins, multimedia, issues about Web commerce and security, the Cooltalk Web telephony applications and more traditional information-gathering methods such as file transfer protocol, gopher and Usenet.

However, with 710 pages devoted to Netscape and its uses and another 874-page volume devoted to Netscape's combined browser/Hypertext Markup Language (HTML) authoring tool Navigator Gold, was it really necessary to publish another book on Netscape plug-ins? And others on multimedia publishing, three-dimensional multimedia publishing, HTML publishing, a power user's tool kit and a JavaScript guide?



Couldn't some of those be combined into a smaller number of more comprehensive texts on Web publishing?

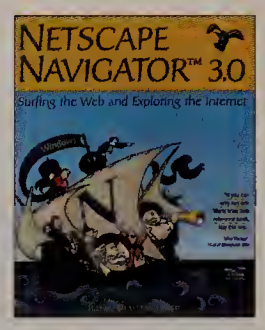
Taken as a whole, the books cover a fairly wide subject area, but that area seems to be chopped into chunks that either overlap or go into a stupefying amount of detail.

Ventana isn't alone among publishers that wish to make hay on the Web. IDG Books, for example, which is owned by the same parent corporation as *Computerworld*, includes such hard-to-differentiate titles as *Java for Dummies* and *Java Programming for Dummies* in its lineup.

Both lines of books are clearly aimed at consumer or nontechnical business audiences. But at costs ranging from $29.99 to $49.95 apiece, even consumers should be able to cover a little wider swath with a single purchase.

Netscape Navigator 3.0: Surfing the Web and Exploring the Internet **by Bryan Pfaffenberger. AP Professional, a division of Academic Press, Inc., Boston; 425 pages, $29.95 (paperback).**

This book is an all-in-one Web surfing guide aimed at medium-savvy business users and consumers. In a segment of the introduction called "Why Do You Need This Book?," Pfaffenberger defends the existence of Navigator guides by saying that users not only have to learn the features of Netscape, but also learn the culture and capabilities of the Web.



He goes on to demonstrate the need with fairly simple chapters on how to use Netscape itself, how to navigate the Web and what to do when you encounter an error message or can't reach a site.

In other ways, it pretty much covers the same ground as the "Official Netscape" guide, including Web-based multimedia, plug-ins, security and commerce, and Internet telephony.

None of these issues is covered in nearly the depth that either the Ventana or IDG series achieves.

But the breadth and level of information in both the basic Navigator guides are much more suited for a medium designed for ease of use and an application designed to give users a few basic tools and let them dig up utilities and information on their own.

— Reviews by Kevin Fogarty

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Briefs

Web-tracked orders

Industri-Matematik International Corp. in Tarrytown, N.Y., introduced a new version of its System ESS software designed to provide manufacturers with a component to access customer orders via the World Wide Web. Typical pricing for System ESS 4.3, which was designed to work with standard Web browsers, starts at $600,000.

Online banking

Huntington Bancshares, Inc. in Columbus, Ohio, partnered with **Unisys Corp.** to develop an Internet banking site. The Huntington Web Bank (www.huntington.com), developed using Virtual Bank Manager software from **Five Paces, Inc.** in Atlanta, lets customers use secured Web browsers to pay bills electronically and download account information into personal financial software such as Intuit, Inc.'s Quicken.

Intranet boat

CONTINUED FROM PAGE 79

as many human resources manuals, Isaacson said.

For now, Kraft will roll out a human resources intranet to the 7,500 users at headquarters. It will deploy the application, in one form or other, to the remaining 35,500 employees in stages next year.

At Baylor Health Care System, the majority of employees — 5,000 of 8,000 total — don't have PCs.

"That's been one barrier for an HR application we thought about doing," said Mary-Lynne Henry, a project manager at the Dallas-managed health care company.

More affordable

Internet appliances could make intranet access affordable for users who otherwise wouldn't have PCs. But those devices are still unproven, said Nelson Chevis, an IS consultant at Baylor, who is responsible for 'net systems administration and desktops.

"They're so new, and no one's decided on configurations," Chevis said. "We have no idea yet what hardware we might give these employees."

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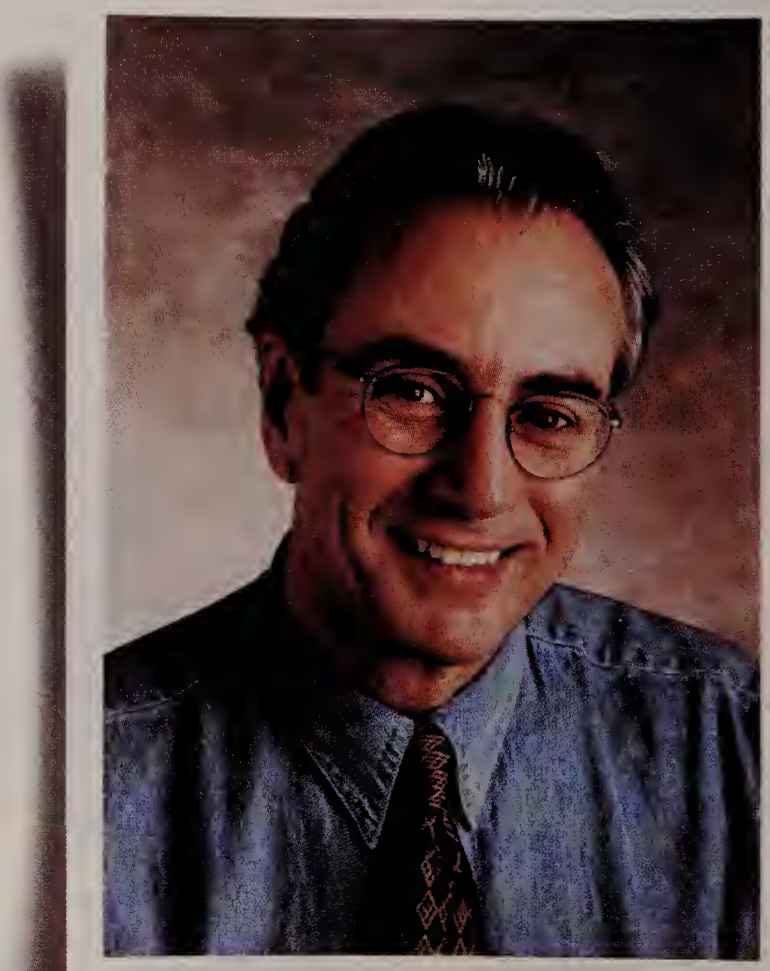
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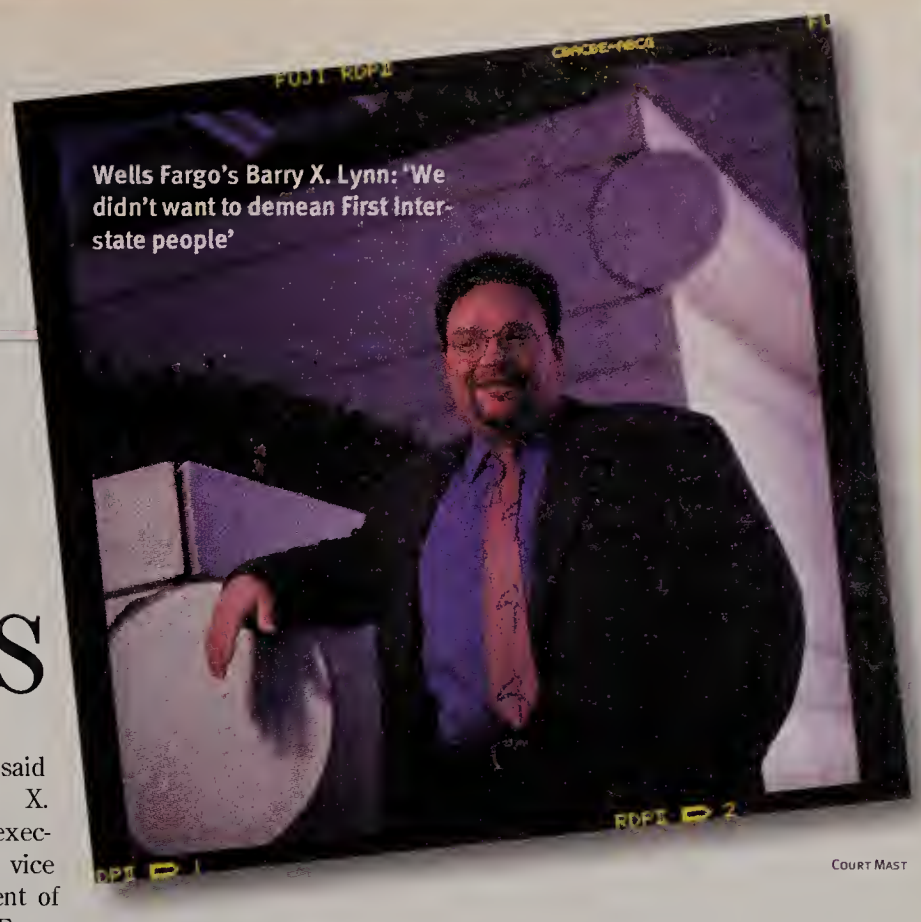
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Corporate Strategies



Wells Fargo's Barry X. Lynn: 'We didn't want to demean First Interstate people'

COURT MAST

Human factors figure in to mergers

By Thomas Hoffman
SAN FRANCISCO

When Wells Fargo Bank bought First Interstate Bancorp April 1, it knew it wouldn't be able to keep First Interstate's entire 580-person IS staff because of redundancy among data center operations and other functions.

But Wells Fargo wanted to retain as many high-level First Interstate information systems executives as it could to harness their knowledge of the former bank's customer base.

Unfortunately, things didn't work out that way. Wells Fargo's severance package may have been too enticing. First Interstate IS executives in the two highest grades were offered two years' salary, regardless of their length of service. Perhaps that helps explain why 16 of First Interstate's top 18 IS executives took the money and ran.

"We lost too many people we wanted to keep," said Marsha Underhill, vice president and manager of human resources/organizational development at Wells Fargo's Customer Information Group (CIG), which is based here.

The quicker, the better

Underhill said Wells Fargo would like to have kept 90% of the First Interstate IS employees who opted for the severance package. Bank officials declined to say how many First Interstate IS employees left voluntarily out of the 154 who were "displaced." Wells Fargo wanted to complete the merger as fast as possible to reach its target of $800 million in annual cost savings between the two banks.

A quick systems consolidation would also help keep Wells Fargo from "demoralizing" First Interstate's IS staff through a long and torturous process, said Barry X. Lynn, executive vice president of Wells Fargo CIG. "We did our best to ensure people kept their integrity," he said. Lynn said Wells Fargo's attractive severance package and outplacement programs helped achieve that.

Wall Street analysts who follow the bank agreed. "With an acquisition this size, a lot of people [will be] laid off and [Wells Fargo has] been fair and up front" with First Interstate staffers, said Art Bender, a banking analyst at Sutro & Co. in San Francisco.

Underhill and Wells Fargo's human resources staff in March conducted a cultural evaluation of First Interstate's IS group. Underhill found that First Interstate's IS group "was more into documentation" than Wells Fargo's and was more "process-focused" than the acquiring bank's IS group.

Perhaps more important, Underhill found that First Interstate's IS professionals "were not encouraged to take risks," unlike Wells Fargo's technologists. After Wells Fargo went public with the results of that study a week before the acquisition was completed, "it created quite a stir," Underhill said. First Interstate managers felt "they were being put down," she said. But one of the lessons Wells Fargo has learned from First Interstate is how to manage and support IS in a multistate environment. "One of the things we learned was, 'Duh! What works in California doesn't necessarily work in Texas,'" Underhill said.

Tool may allay 'net fears

By Gary H. Anthes

Business unit managers at SunTrust Banks, Inc. in Atlanta are just beginning to use the Internet — and they are scared.

"They read *Computerworld* and other magazines, and they send me articles on Internet security," said John Wylder, senior vice president for information security at the bank. "They say, 'Oh my God, what should I do?'"

Now Wylder can allay users' fears with help from a tool from the Open User Recommended Solutions (OURS) forum in Chicago (www.ours.org). The OURS Information Protection Task Force published a framework for determining security needs called "Recommendations for Providing Secure Business Services Over External Networks."

The paper contains matrices, or tables, that allow organizations to match up applications, threats and defenses into a kind of three-dimensional security checklist. The matrices let information systems managers and end users determine when a particular type of security is inadequate or overkill, its creators claim.

SunTrust, *page 92*

OURS security

Amount of security recommended for three application types:

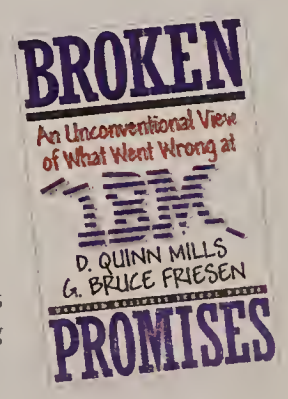
Threat	Advertising	Sensitive Information Services	Electronic Commerce
Destruction	Basic	Basic	Strong
Interference	Basic	Basic	Strong
Modification	Strong	Strong	Strong
Misrepresentation	Basic	Basic	Strong
Repudiation	None	None	Strong
Inadvertent misuse	None	Basic	Basic
Unauthorized access	Basic	Strong	Strong
Unauthorized use	None	Basic	Strong
Unauthorized disclosure	None	Basic	Strong

Source: Open User Recommended Solutions, Chicago

Book puts IBM under microscope

Broken Promises: An Unconventional View of What Went Wrong at IBM **by D. Quinn Mills and G. Bruce Friesen; Harvard Business School Press, Boston; 224 pages; $22.95 (hardcover)**

Book reviews



The subtitle here might surprise longtime followers of the computer industry. What went wrong at the world's biggest computer company? First, IBM executives invested in bigger mainframes, while failing to foresee the rise of PCs and servers in the 1980s. Second, Big Blue stopped listening to customers.

So a technology leader became a follower. Promises went kaput: Users sometimes got second-best equipment that was delivered late. And employees could forget about job security.

If all that seems like conventional high-tech wisdom by now, hang on. The authors — Mills, a Harvard Business School professor, and Friesen, an Andersen Consulting manager — distin-

Book reviews, *page 92*

European Union sees need to regulate 'net

By Elizabeth de Bony
LUXEMBOURG

European telecommunications officials are working on policies aimed at promoting international electronic commerce while also restricting content they consider harmful.

European Union (EU) industry ministers are backing a proposal by German Economics Minister Guenter Rexrodt to launch an international initiative to identify common conditions that govern the use of the Internet.

European officials say global networks such as the Internet will play an essential role in the international exchange of goods and services.

And without international coordination, Rexrodt fears national governments will legislate unilaterally, which could result in dire consequences for the development of global information networks.

Important issues

As a follow-up, Germany next year will host an international conference to discuss issues such as security of information services, privacy, intellectual property rights, ethical and moral standards and licensing schemes.

Meanwhile, EU officials are set to issue papers that will explore "harmful content" on the Internet and video-on-demand services.

The group intends to launch an in-depth policy debate within the next year about how to protect minors who use those services.

German prosecutors in Bavaria last December prompted a debate about free speech on the Internet when they asked CompuServe Corp. to block 200 Internet discussion groups. Officials at that time said the 200 'net sites violated national obscenity laws. CompuServe temporarily blocked the sites.

De Bony writes for IDG News Service in Brussels.

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Briefs

Bell Atlantic finds no video demand

Bell Atlantic Corp. is canning its unprofitable video-on-demand service. The company has been running a commercial field trial using Asymmetrical Digital Subscriber Line modems over copper wire in Fairfax County, Va., since May 1995. Bell Atlantic found that subscribers bought an average of 3.6 videos per month. It plans to offer video on demand in 1998 over a switched broadband network to Philadelphia customers.

Data deadlines concern IS managers

Timely delivery of data to business managers is the top concern of most information systems executives, according to a survey report slated for release today by **Find/SVP** in New York and **EMC Corp.** in Hopkinton, Mass. IS managers also worry that their inability to manage scattered data stores hurts their companies' competitiveness, the survey found.

The New IT Blueprint for a Changing World



Seminar Schedule

Atlanta	November 7	Montreal	November 5
Baltimore	November 13	Nashville	October 29
Boston	October 29	New York	October 31
Calgary	November 12	Orange County, CA	October 16
Charlotte	November 5	Orlando	October 30
Chicago	October 22	Philadelphia	November 12
Cleveland	November 6	Phoenix	November 19
Columbus	November 7	Portland	October 16
Dallas	October 24	Salt Lake City	November 13
Denver	November 14	San Diego	October 15
Detroit	October 24	San Francisco	October 17
Houston	October 23	Schaumburg, IL	November 8
Kansas City, MO	November 20	Seattle	October 17
Los Angeles	October 15	Stamford	October 22
Miami	November 6	Toronto	October 30
Minneapolis	October 23	Washington, D.C.	November 14

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Creative use of space saves agency money

By Mindy Blodgett

Consulting and Audit Canada (CAC) last year faced a thorny challenge when it juggled a rapidly expanding staff and a mandate to cut costs.

To solve the problem, the government agency undertook a swift and ambitious "hoteling" plan to cut overhead while sending more teleworkers into the field.

Hoteling is a telecommuting concept under which workers share desks and office space through a system of reservations that assigns facilities on days when a worker isn't on the road.

CAC aimed to save $234,000 in overhead, including an entire floor of office space, by implementing the concept.

It worked, according to William Gregory, a senior consultant in the information management support practice at CAC.

In fact, the CAC project, which started a year ago and was rolled out in January, is a model for other Canadian government agencies that seek to cut costs through telecommuting.

"We've made much better use of the space we have, and everything has gone according to plan," Gregory said. "We met our objectives. The [biggest] expenditures in an office are salary and office space overhead. We couldn't cut any workers, so we looked elsewhere."

Under the CAC hoteling project, about 45 employees share desks, with about three workers per desk.

Reserved for telecommuters

Elements of CAC's telecommuting and hoteling project:

- The office migrated to a single operating environment.
- Each teleworker was given one telephone number through which he could be reached no matter where he is working.
- The new office site includes an informal drop-in center, portable filing units and a formal meeting room.

The auditors and consultants, equipped with 486-based laptops from AST Research Corp., now work in the field several days per month.

When they plan to work in the office, they use an automated reservations system to set aside time at a desk. Office tools are kept in rolling, mobile storage containers.

Gregory said CAC spent about $400,000 in one-time costs on laptops, training and network and telecommunications infrastructure upgrades.

Challenges included dealing with union workers who were concerned about the change in working conditions and training issues.

"We sat down with the union and explained to them that the project was actually to the benefit of the workers," Gregory said. "And we discovered that classroom training was a failure — we needed one-on-one training. But once we got through those issues, we were fine. We were able to roll this out really quickly."

Some major U.S.-based companies, including some divisions of MCI Communications Corp., have gravitated toward the hoteling concept when undertaking telecommuting projects.

But the trend hasn't really caught on in the U.S., according to Thomas Cross, a telecommuting consultant and chairman of Cross Market Management Co. in Boulder, Colo.

"Americans are more individualists. They want their space when they are in the office," Cross said.

"You have to be a highly organized worker to participate in hoteling. And managing the hoteling reservations system can be a management problem," he said.

"But it can definitely save in real estate costs," Cross said.

Analysts say that for hoteling projects to work, a company needs clear financial goals, employee involvement and the right technology.

Book reviews

CONTINUED FROM PAGE 89

guish between technology and product. The authors write that after some retrenching, "IBM had the technology its customers wanted, but because it had lost touch with its customers' needs, it often did not have the product." And Big Blue's market share tumbled.

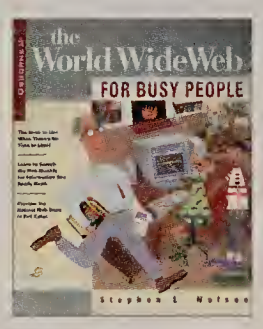
Mills and Friesen argue that the 1993 appointment of Louis V. Gerstner Jr. as chairman — the first non-IBMer to reach that post — demonstrated that IBM was "finally ready" to change from outdated technologies to new ones.

That sounds like a historical departure, but the authors suggest past management upheavals reflected the same kind of reluctant, unavoidable transition for IBM. The authors seek to draw lessons from IBM's case for other large companies, such as focusing on customers' needs and fighting against bureaucracy build-up.

The World Wide Web for Busy People **by Stephen L. Nelson; Osborne/McGraw-Hill, Berkeley, Calif.; 259 pages; $22.95 (paperback)**

With its colorful animations and simple language, this book might initially make you think it should have been called *See Dick and Jane Surf the Web.* Indeed, the author has made this book useful as an Internet and World Wide Web primer for first-time computer buyers.

But the book is chock-full of screen shots, definitions and tips for new surfers, businesspeople who are interested in setting up their own Web sites and parents who want to monitor children's Web use. The book offers strategies for researching through Web search engines and offers hints to improve your desktop system's performance when downloading a home page seems slow. The author says you don't need the latest and greatest PC and software to get going, but he writes primarily for users who have Netscape Communications Corp.'s Navigator browser running on a PC with Windows 95. Important appendixes substitute introductory information to help Macintosh users and those browsing with Microsoft Corp.'s Internet Explorer.



World Wide Web for Busy People *simplifies the Web search, usage process*

This Indecision Is Final: 32 Management Secrets . . . [of] People Who Never Worked 9 to 5 **by Barry Gibbons; Irwin Professional Publishing, Chicago; 160 pages; $21.95 (hardcover)**

Gibbons brings his decidedly British humor (complete with jokes about the royal family) and his 30 years as an executive and business consultant to this light, chatty book intended to present business truths among the laughs.

Along the way, Gibbons, the former CEO of Burger King Corp., turns out something like *Monty Python Gets an MBA.*

The author regales readers with stories such as one about his failed wine bar — called Death in the Afternoon, after the Hemingway bullfighting story — to explain that "you don't impact the market by pursuing your own ego and cleverness. Distinction is what gets marketplace impact."

Gibbons even gets to information systems.

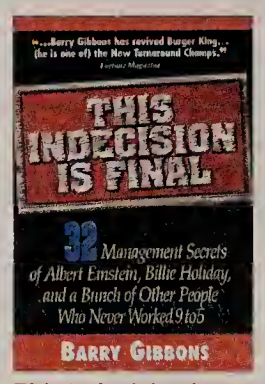
He advocates spending one IS budget cycle on training users before a company buys its systems, to "create a genuine cadre of professional users in your business."

Besides, he says, the next round of technology will be better and less expensive when users are ready.

And so it goes, with pithy one-liners inserted in clever vignettes, both real and imagined.

The wisdom is real, but be warned that some of the 32 "secrets," or brief essays here, read as though the author is auditioning to give a management seminar at your company.

— *Reviews by Michael Goldberg*



This Indecision is Final *explores management through humor*

SunTrust

CONTINUED FROM PAGE 89

SunTrust is just getting on the Internet with a World Wide Web site geared toward distributing public information. Because the site isn't used for sensitive information or electronic commerce, it doesn't warrant the cost of stringent security. "For example, I can sit down with these matrices and [say to] users, 'Look, we are not doing electronic commerce yet, so we don't need to use digital signatures,'" Wylder said.

Different levels

The first matrix shows what general level of protection is needed against nine types of threats for three broad classes of applications running on a public network (see chart, page 89). OURS officials said users may want to tailor this matrix to their specific applications.

The second matrix lists 33 protection schemes, such as passwords, firewalls and encryption, and indicates how well each protects against the same nine types of threats. For example, the matrix says smart cards offer no protection against inadvertent misuse, limited protection against destruction, basic protection against repudiation and strong protection against unauthorized access.

OURS member Rich Ayers, vice president for network information management at The Chase Manhattan Bank Corp. in New York, said the methodology is geared toward IS managers and business unit managers. It is a planning tool for new applications and a checklist for pinpointing gaps in security, he said.

"If I'm planning to do business on the Internet, I can answer the question, 'For this type of business, what will I have to do to protect myself?'" Ayers said.

Wylder said the OURS paper can be useful in making cost/benefit arguments with management. "It's a nice way for me to show that I might be able to put up a very inexpensive Web site for advertising. But when we start moving into electronic commerce, industry is behind me in recommending a much more stringent set of protection alternatives," he said.

Asked if the methodology might lull users into taking a simplistic, cookbook approach to security, Wylder said, "Your security is only as good as the last time you verified it." The matrices, with supporting methodology and definitions, cost $49.95.



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MAKE WAY FOR MULTIMEDIA, SAYS PETER G. W. KEEN IN HIS DEBUT COLUMN, **100**

Managing

Making Change

Struggling to maintain its turnaround, the retail giant tells its IS staff to focus on service, not just technology. IS technicians are learning how to placate obnoxious users, deliver bad news gracefully and leave their 'customers' not just pleased, but delighted.

BY ROBERT L. SCHEIER

During the past three years, Sears, Roebuck and Co. has revived itself at great cost. The retailer cut 50,000 employees, closed more than 100 stores and eliminated its famous catalog. Revenue for the core retail and credit-card businesses is up from $30.4 billion to $34.9 billion, and net income is up from $625 million to $1 billion. But CEO Arthur Martinez is quick to point out that Sears hasn't yet met his goals for profitability and return to shareholders.

Only a hardworking, creative and customer-focused information systems organization can help cut costs, deliver new products such as Sears' highly profitable credit card and create new sales channels such as "off-the-mall" hardware and auto stores. Those who can't focus on customers, whether inside or outside Sears, may as well leave — and in the past three years, 25% of Sears' 1,000-person IS staff has.

Some of those who stay are required to go through 10 days of training each year, including a two-day course on "service excellence." To learn how Sears re-educates its IS professionals, *Computerworld* Senior Editor Robert L. Scheier sat in on part of the course at Sears' headquarters in Hoffman Estates, Ill., in early September. Then he spoke with graduates about how they've used what they learned.

WALK IN THE CUSTOMERS' SHOES

8:40 A.M. Salesmen with carpet swatches are already waiting to meet buyers in the airy headquarters lobby. But nine women and six men, with titles such as project manager and programmer analyst, are there to learn. The topic: Service Excellence for IS Professionals.

Their instructor is Tom Clarke, a 57-year-old vice president of Interpersonal Technology Group, Inc. in Rockville Centre, N.Y. Clarke, a 25-year IS veteran, doesn't just talk customer service, he acts it out, intently pacing and jabbing the air with a felt-tip marker as he talks. He starts by asking everyone to remember "the best and worst service you ever got."

Maureen Young, a systems consultant, describes an oil leak that caused the engine on her car to seize. The car eventually was fixed, but Young was miffed because the dealer rarely returned her telephone calls. Another systems consultant remembers how the owner of a moving company assured her everything would go fine before her move, but he never answered her calls when the wrong truck arrived at the wrong time.

On the other hand, Marc Peskin, a program manager, remembers how a clerk brought a pair of shoes to his house after Peskin unwittingly left the store carrying two right-foot shoes. The salesman also brought the next largest size in case that pair fit better.

The lessons, Clarke says, are the need to keep in touch even when things are going well; the need to execute as promised; and that even a mistake can turn into a memorable experience for the customer.

Such stories changed the way Gul Ahuja handles support calls; the programmer analyst took the course in April. "No matter how small I think the problem is, someone down the line thinks it's a catastrophe," he says. He used to go the extra mile for a user when he had the time. Now, he says, "You make the time."

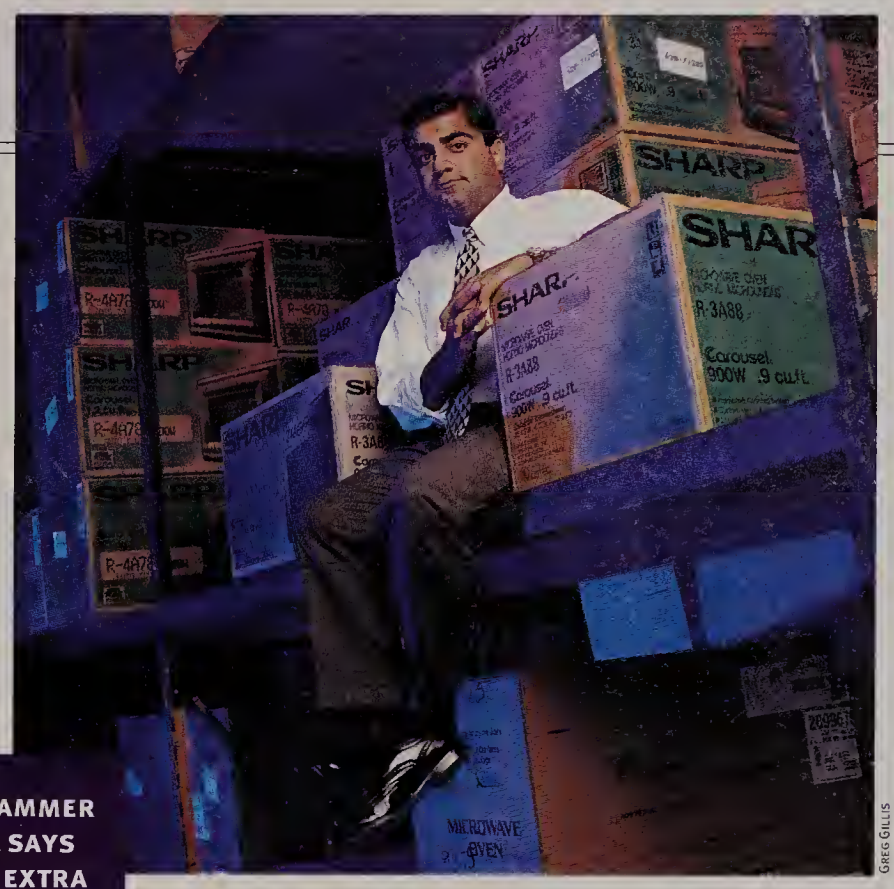
11 A.M. Clarke has the students imagine what their most important customer thinks of them. For some, it's not a pleasant moment. Their eyes drop



EQUIPMENT PLANNER LINDA ELLIOTT: "I TREAT EACH [USER] REQUEST WITH RESPECT AND DIGNITY."

GREG GILLIS

at Sears



GREG GILLIS

GUL AHUJA, PROGRAMMER ANALYST AT SEARS, SAYS HE USED TO GO THE EXTRA MILE FOR A USER WHEN HE HAD THE TIME. NOW, HE SAYS, UNDER THE COMPANY'S NEW CUSTOMER SERVICE MANTRA, "YOU MAKE THE TIME."

to their desks and their hands rise to their foreheads or cheeks as they put themselves in their customers' shoes.

"IS provides services I don't take advantage of because they're not advertised right," one says. Another complains that IS cuts features from systems, yet it needs more time to finish them. Others say IS doesn't understand their business or puts them through too much red tape to get new systems.

Clarke tells the students to write down specific steps they can take to fix the problems. Then he dismisses them for lunch.

ATTITUDE IS EVERYTHING

12:42 P.M. Clarke begins playacting, pretending he's an IS manager with a great idea he wants to share with a troublesome customer. Clarke hems, haws, looks at the floor and picks his fingernails. "What did I just communicate?" he asks.

"Whipped puppy," someone yells. "You have dirty fingernails," another yells, laughing. Clarke repeats the scene, this time looking the customer firmly in the eye.

The point is obvious but powerful: Attitude determines, or at least influences, actions. And one key attitude, Clarke says, is that IS professionals should think of themselves not as employees with guaranteed jobs, but as consultants who must earn their keep every day.

1:05 P.M. What exactly does that mean? Clarke gets personal. "You have the power to terminate me," he tells the students, because he won't be invited back to teach the second day of the course if they don't think this first day is worthwhile.

The message is clear: An employer can fire an IS person, or outsource his job, if he doesn't provide value every day.

That means no coasting, even on the inevitable bad days. "I can't get sick," he says. "As an employee, I'd stay home and go to bed." But now he shows up and does his best. "I'll let you in on a little secret," he adds mischievously. "You get well just as fast at work." The room is deadly silent as the point sinks in.

SHINING MOMENTS

3:07 P.M. Clarke wants the students to turn interactions with customers into "shining moments" that leave customers with a good impression. For example, he asks, how would you handle a customer who demands a complex LAN and server upgrade under an impossible deadline?

"Always respond with what I *can* do and *will* do," Clarke advises. Give customers the option to change the resources, deadline or deliverable for the project. The customers will feel in control and will try harder to make a choice work.

SEARS

CLASS LESSONS

The following are among the lessons Sears' IS professionals learn in the "service excellence" course some are required to take:

▶ NEVER SAY NO: "Always respond with what I *can* do and *will* do," says Tom Clarke, vice president, Interpersonal Technology Group.

▶ KEEP IN TOUCH: Give users regular updates about key projects, in the form and frequency they want. Don't call meetings if a user wants E-mail.

▶ THINK LIKE A CUSTOMER: Remembering the good, or poor, service you received as a customer drives home the need for change.

▶ LEARN TO BOUNCE BACK: Failures can be turned into "shining moments" of customer service. Clarke's steps for doing that include listening, apologizing, exploring solutions, agreeing on the action to be taken (giving the customer the final say), taking action and following up with users.

▶ CHANGE YOUR ATTITUDE. This ranges from smiling when you talk on the phone to loosening up on the highly analytical thought process that got you where you are in IS.

Such advice rang true for Linda Elliott, an equipment planner, when she took the course in February.

The soft-spoken 34-year Sears veteran has tackled tough jobs, ranging from closing Sears' $3.3 billion catalog business to negotiating price and delivery terms for PCs and videoconferencing gear. She and her group in June won a service excellence award for their work installing PC-related gear at the 6,000-person headquarters.

She bristles when a visitor asks how she keeps her patience when users make "trivial" requests. "I treat each request with respect and dignity," she says firmly.

But if someone tries to con her by claiming an executive needs something done right now, she may go right to the executive, find out if the executive really made the request and negotiate a solution.

But then she lets the person who made the request take the credit. Gracefulness is part of customer service: "Our user community hopefully never knows how difficult it is to get something done," she says.

WHEN IT ALL HITS THE FAN

How do you shine when you've made a mistake? That's on the mind of project manager Laura Domoto at 9 a.m. on a Friday, because at 10:30 a.m. she will have to explain to a customer what it will take to fix a bug caused by her staff in a new reporting system.

Domoto says she isn't nervous because the customer knows the system is still in the pilot stage; nobody relies on it yet.

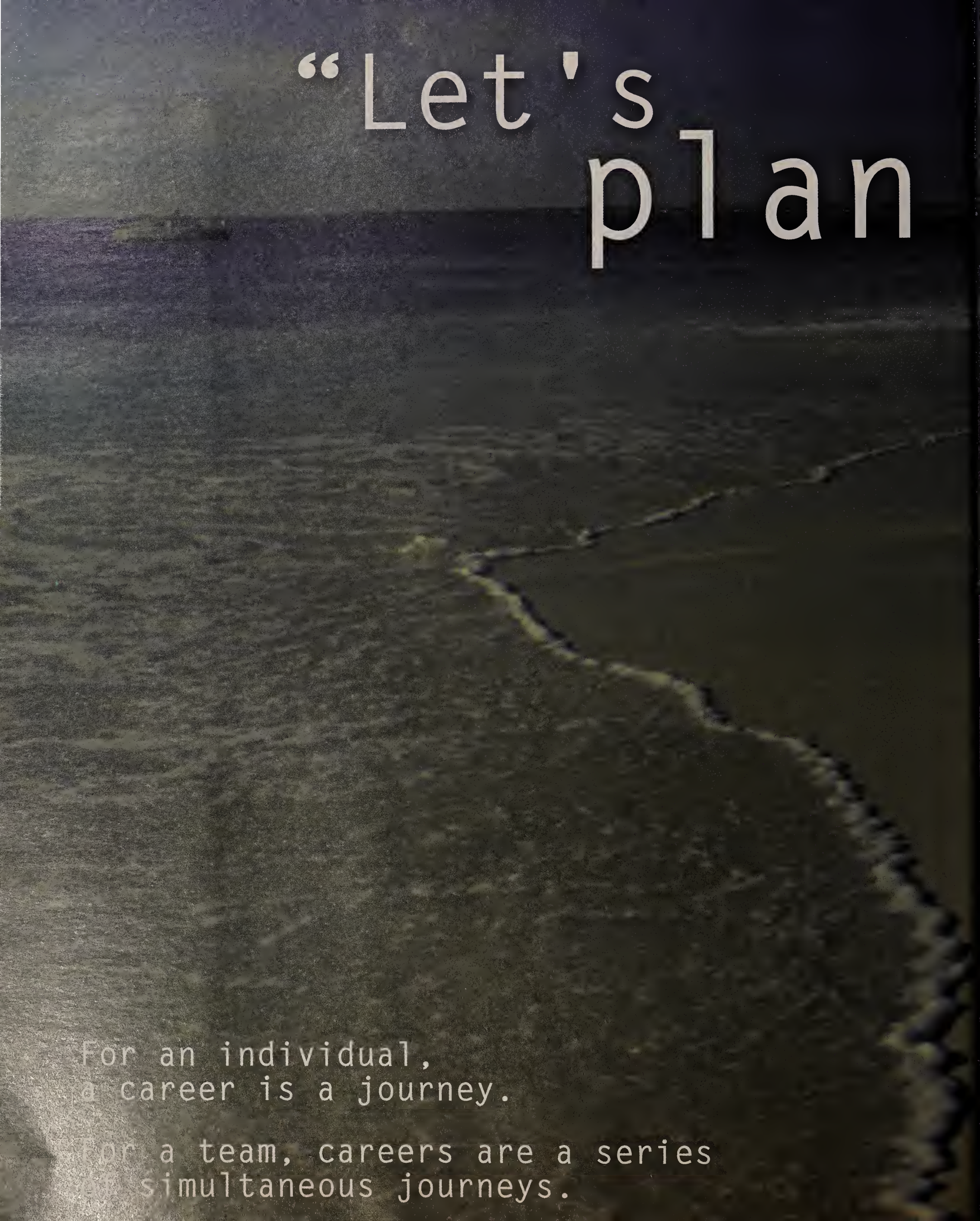
She's also letting the customer decide whether IS should recalculate the data already gathered for September or just fix the system and begin relying on it for data in October. "If you've kept them informed all along," she says, "it won't be a shock."

But bringing bad news is harder for the technical professionals on her staff, she admits. "They want to be perfect, and they couldn't fathom that the business could accept anything less."

For these 15 IS professionals, today's class is just the beginning of the journey. As Domoto says, "We have been technicians, and we're learning how to be shining."

3:52 P.M. Clarke tells the class to commit to changing one aspect of how they behave with customers before they reconvene for the final session later in the month. "See you in about three weeks," he says as they walk into the hall. "Drive carefully; be safe." ■

Scheier is *Computerworld*'s senior editor, management.


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WHO Goes on the Lifeboats?

When the order comes down to cut staff, how do you decide who gets the ax? Take a few tips from some IS managers. **BY BRUCE HOARD**

You're captain of the *Titanic*. Other than the fact that the ship is sinking, it's a nice night. The band is playing, the stars are out and lots of pretty icebergs float by. But the sinking thing is a nagging reality, and it's up to you to decide who boards the lifeboats and who doesn't.



DANIEL VASCONCELLOS

Decision time, Cap'n.

Information systems managers may have that same sinking feeling when they are faced with layoffs caused by downsizing or outsourcing. People — good people — have to go, and there's no easy way out.

There are many incorrect, career-damaging choices that can be made. Do it wrong, and you're the goat; do it right, and you keep your job.

These IS managers need what Tom Gaughan, a vice president at Chelsea Strategy Systems in Jersey City, N.J., calls "an extensive rationale." Translated, that means a carefully crafted plan that relies on past performance and future potential to objectively determine who goes and who stays.

IS managers and consultants agree that meticulous skills assessment is critical to success when people are laid off. They suggest using a matrix, writing down "wants" vs. "musts" or consulting closely with the human resources department. But they insist it's necessary to know what you have before you can know what you need.

When it comes to a list of "musts," most IS managers agree they must do the following:

- Treat everybody absolutely fairly.
- Strongly consider leadership potential and communication skills.
- Base layoff decisions on documented performance.
- Make sure that employees who aren't laid off feel welcome.
- Hang on to people who understand business goals, even if they require technology training.

To meet the essential needs, it may be helpful to start by redefining job descriptions and letting internal people apply for the jobs. That way, everyone whose job is on the line has a chance to affect his or her own fate. This job redefinition also helps managers understand their needs.

Technical and people skills are the twin pillars of talent IS managers that must scrutinize. Technical people who have worked in application development have been exposed to their organizations' business needs and therefore have added value, says Steve Spalding, a partner in the enabling technology practice at KPMG Peat Marwick in San Francisco. "That kind of knowledge doesn't come cheap and generally can't be hired," he says.

IS managers agree that such relationship-building skills are critically important. "Leadership is the whole game," says Michael B. Emery, senior vice president of operations at Du Pont Co. in Wilmington, Del. And Vince Chrisman, manager of IS at Henkel Corp. Parker Amchem in Madison Heights, Mich., says, "I place a lot of importance on leadership and personality."

Chrisman says technical people who lack communication skills create problems that may cripple projects. When users are migrating from nongraphical to graphical user interfaces, he prefers to sacrifice some technical know-how in favor of enhanced communications between users and IS.

As an IS manager at one downsizing defense contractor painfully discovered, a poorly conducted performance review can come back to haunt you when it's time to make tough choices.

Because reviewers at his company lacked the intestinal fortitude to hurt anyone's feelings by openly and honestly evaluating employees, their reviews became useless as future skills assessment tools.

Also, reviewees were denied the constructive development input that could have enhanced their careers.

Don't forget the aftermath. If employees feel they or their colleagues have been treated unfairly, they may pack their highly valued technical expertise and leave.

"These people need to be re-recruited," says Jim MacLachlan, national director of change management at Deloitte & Touche in Wilton, Conn. "Don't assume they want to stay."

And he says of SAP professionals, "You don't ever want to look cross-eyed at them, because they'll get a 20% bump and go down the road."

And from an IS manager's point of view, that's almost as bad as going down with the ship. ■

Downsizing suggestions

When it's time to cut staff, IS managers advise the following:

- Communicate openly and often during the layoff period.
- Fully explain why layoffs are occurring.
- Move quickly.
- Try to retrain employees.
- Try to get people to take early retirement.
- Cut overtime and reassign that work internally.
- Pay close attention to hot-button issues such as gender and age.

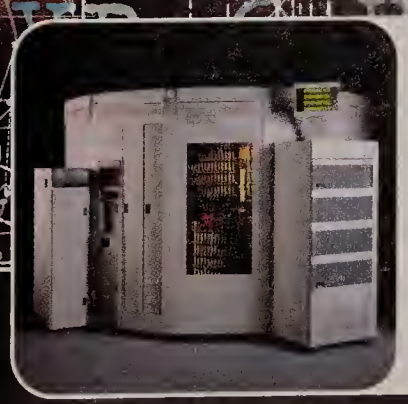
Hoard is a freelance writer in Groton, Mass. He can be reached at bruceh6687@aol.com

Online this week @COMPUTERWORLD

Have you ever faced a tough downsizing decision? Share your experiences this week in an online discussion at our World Wide Web site (www.computerworld.com)

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Peter G. W. Keen

Multimedia: The new mainstream

Multimedia brings back the information that computers have taken away.

Just as when the PC era began, with the Apple II and Visicalc, it's easy to miss the far-reaching impact of multimedia on business.

Many information systems professionals looked at the Apple as a toy computer. Many business managers dismissed it as irrelevant. It took just a decade to move from the Apple II to client/server.


WALTER CALAHAN

Business multimedia is on pace for as major a shift in a shorter time. It's changing the basics of knowledge management in the following ways:

- Multimedia cuts training time in half and increases retention of what is learned by 20% to 40%.
- Customer interaction: The Florsheim Shoe Co. reports that sales-per-store-employee rose 20% when it introduced multimedia kiosks in 550 stores.
- Natural decision input: Caterpillar, Inc. uses virtual-reality tools that allow workers to operate the controls of a simulated backbone fork-loader as if it were the real thing. It took up to a year to build a physical prototype; designers now create a virtual-reality machine in a week.
- Shared understanding: Animation has become a standard tool for communicating to jurors. They see events rather than hear them described. Attorneys make evidence real for the watchers.

This new technology brings back the good old days when "information" meant the rich many-media of our senses. It's a myth that information technology has increased information. It has taken it away. What we call information when we talk about the information society, information economy and the like is the computer-constrained information society.

Think about how humans process information in everyday life and what information they most naturally use.

First, our three-dimensional sight is one of our most powerful tools. Animation, dating from the 18th century, is equally powerful in abstracting and rapidly communicating not information, but ideas, events and even feelings. That's why animation has long been a feature of TV news and why Disney animations are fresh after 50 years and literally universal in their appeal.

Computers display up-to-the-second stock quotes and foreign exchange rates. These are just numbers. Traders want to see the market moving. Now they can. One bank feeds the numbers into a multimedia system that displays the results as colored holographic images that float in the air above the traders' desks.

Car buyers want to be shown, not told. That's why they go to dealers and why multimedia kiosks, CD-ROMs and the Internet will make the car salesperson an endangered species within the next decade.

People don't want to learn about something, they want to learn to do it. Multimedia gives humans the information they most naturally absorb: visual, auditory (we're experts in sound processing to the degree that we know if a note is beginning or ending a musical phrase) and touch. I don't have space here to give you examples, but I have hundreds. (I'm happy to share them with readers via the Internet.)

IS professionals shouldn't repeat the mistake of the old data-processing world when the Apple II appeared. Forget the multimedia hype. Tune out the extremes of *Wired*'s most frenzied libertarians. Ignore just how often surfing the 'net is a waste of time. Business multimedia will be the new mainstream. IS can and should lead it, but IS must keep in mind that it was a follower with PCs. IS had better lead this time.

Designing the enterprise multimedia network and multimedia data resource will push the limits of imagination and expertise. It also adds some great new jargon: isochronous communications, binary large object bases and the like.

As always when a new wave of technology and its uses reach critical mass, the fundamental role of IS is to build, often belatedly, the needed infrastructures.

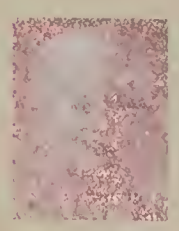
IS must be in the business of human knowledge management, customer interaction, natural decision input and shared understanding, not information. ■

Depending on the month, Keen is an author, consultant, public speaker and professor based in Great Falls, Va. His E-mail address is PGWK@aol.com.

F.Y.I.

Executive Track

Todd A. Garrett has been named senior vice president and chief information officer at Procter & Gamble Co., the Cincinnati-based consumer products giant. He was previously group vice president and president of worldwide strategic planning for beauty care products.



Mary A. Patterson has been named vice president of systems development in World Wide Information Technology Services at Turner Broadcasting System, Inc. in Atlanta. She will oversee Turner Broadcasting's systems development activities.



Larry Roos has been promoted to vice president of MIS and logistics at Restaurant Services, Inc. (RSI) in Miami. RSI is the purchasing company for Burger King.

Michael G. Blair has been named divisional vice president of computer services at Kmart Corp. in Troy, Mich. Blair's responsibilities include computer operations, client services, technical services, capacity planning and production support. He had been vice president of data services at Federated Systems Group.

Thomas L. Walker has been named CIO at DecisionOne Corp., a multivendor computer services firm in Frazer, Pa. He will oversee the design, development, implementation and support of DecisionOne's information systems.

James W. Masterson has taken over as vice president and CIO of Major League Baseball Enterprises in New York. He will collect and analyze data on the sport's marketing growth. He spent 24 years at Kraft General Foods in marketing and IS.

IT diplomacy



Diplomats from around the globe will take a day-long break from dealing with world problems when the Association for Information Technologies (AIT) holds its first United Nations Symposium.

The full-day conference will be held Oct. 31 at the United Engineering Center in New York, home of the U.N.

Computer industry experts will offer insights on the benefits of the Internet and related technologies to U.N. representatives and AIT member corporations with international business goals.

AIT represents the technology interests of more than 300 Fortune 1,000 corporations and major government institutions.

The cost for AIT members is $195. For more information, call AIT at (516) 269-6713.

Hear hear!

"The customer's job is to whine; your job is to make it a happy tune."
— Martin A. Stein, vice chairman of BankAmerica Corp. in San Francisco, to members of the Society for Information Management (SIM) at its recent conference in San Francisco.

The NCR Scalable Data Warehouse.



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At the announcement in Tokyo ... used 50 workstation... data warehouses ... world capabilities, NCR ...

NCR debuts mammoth 11 terabyte data warehouse

Tokyo ... for ... ho... P...

NC... dep... Ter...

EMC, NCR to Demonstrate Largest Data Warehouse

By a Wall Street Journal Staff Reporter

HOPKINTON, Mass. — EMC Corp. and NCR Corp. tomorrow will unveil what is believed to be the world's largest data warehouse, containing 11 terabytes, or 11 trillion bytes, of information.

The product, which will be showcased in Tokyo, combines EMC's open-system computer-storage product, the Symmetrix 3500, with a powerful ... developed by NCR, a unit of ... and NCR ...

... age-system maker recently shifted its sales strategy to include more OEM agreements.

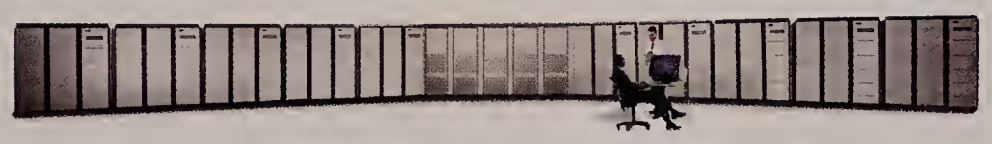
The 10 high-end storage units EMC sold to NCR are valued at over $14 million, the companies said.

In the demonstration, Dayton, Ohio-based NCR has connected 50 workstations to the database, generating a volume of transactions equivalent to 3,000 users querying the data warehouse, the ...

Only we can make news this big.

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Once again, NCR is leading the way in data warehousing. Using NCR's robust Teradata® database and EMC™ intelligent storage, coupled with our highly scalable WorldMark™ servers, we built the world's first data warehouse large enough to handle 11 terabytes of data. Or 2.75 billion pages of text.



NCR's WorldMark servers with EMC's Symmetrix® storage allow you to turn mountains of raw data into useful information with unprecedented speed, giving you unmatched querying capabilities. And only WorldMark servers offer you a platform that scales from SMP, to clusters, to MPP, allowing you to start your data warehouse small and grow it to any size.

To get more information about NCR's scalable data warehouse, call 1 800 CALL-NCR, ext. 3000. Or experience our data warehousing capabilities firsthand at: http://www.ncr.com. Or visit http://www.emc.com

intel inside pentium

EMC² THE STORAGE ARCHITECTS

NCR

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Buyer's Guide: Notebooks

Q What do you gain with a 150-MHz notebook?

A A modest performance improvement at a higher price.

By Howard Millman

REVIEW
Dell Latitude XPI P150ST

Dell Computer Corp.
Austin, Texas
(800) 289-3355
www.dell.com

Rating: B+

Dell's top-end notebook, the Latitude XPI P150ST, offers only a minor incentive for the average user to run out and buy it. Performance improvements over Dell's previous top-end machine, the 133-MHz Latitude LM P133ST, add up to only about a 10% gain in the 150-MHz version; the P150 costs about $1,100 more; and it weighs an extra 1.2 pounds.

But if you need to deliver jazzy portable presentations, the XPI P150 may give you that extra oomph. Its standard hardware configuration has several features aimed at multimedia. Those include a built-in six-speed CD-ROM drive, 30 frame/sec. MPEG video, 128-bit Peripheral Component Interconnect video bus and stereo audio. Readily reachable audio receptacles make it easier to import or export audio segments.

The XPI P150's raison d'etre is its you-have-to-see-it-to-appreciate-it display. With resolutions that range from 640 by 480 pixels in 64,000 colors to 1,024 by 768 pixels in 256 colors, an 80-to-1 contrast ratio and 0.31 dot pitch, you get crisp text and sharp colors even in moderate ambient light. A 45-degree viewing angle lets small groups comfortably view the screen.

If the display quality were your primary yardstick, you could consider using the P150 instead of a desktop machine. As a practical matter, you would need to add Dell's optional $300 docking station — which includes a 10M bit/sec. Ethernet port — plus your own keyboard and mouse. For an extra $479, Dell's Desktop Solutions Pack gives you a 15-in. monitor, a 104-key keyboard and a mouse. The P150 will simultaneously drive a monitor and its own LCD display.

But there's no free lunch — you pay for what you get, in higher cost and more weight. The P150 tips the scales at 7.3 pounds, including batteries. That extra pound — the weight of the CD-ROM drive and the extra ounces from a larger screen — could mean the difference between comfortable toting and an aching shoulder at day's end. Dell claims a 10% performance gain over the 133-MHz platform, and informal measurements using office applications do show a minimal gain.

PACKED WITH EXTRAS

Interestingly, the P150 has length and width dimensions — 9 in. by 11 in. — similar to its predecessor, though it gains ¾ in. in thickness. But Dell made good use of that extra space. It packed it with the CD-ROM drive, 16M bytes of RAM, a lithium ion battery, two Type I PCMCIA slots (or one Type II PCMCIA slot), a removable floppy drive and a readily removable 810M-byte hard drive. You can order a 1.3G- or 2.1G-byte hard drive as an option. The unit supports up to 48M bytes of Extended Data Out RAM. Standard software includes the Windows 95 operating system.

Forward and backward compatibility enables owners of previous Dell laptops to reuse their hard drives and docking stations with the new units.

Audio capabilities consist of crisp-sounding 16-bit Sound

Blaster Pro compatible stereo, a built-in microphone and four speakers mounted inside the unit. Considering their size, the speakers generate surprisingly clear sound.

CARD TRICKS

We tested our unit with a Compaq Computer Corp. 28.8K bit/sec. PCMCIA modem card and a MegaHertz Ethernet PCMCIA card. The modem worked well, and we liked the short cable that connects the card to the RJ14 telephone jack, minimizing the chance of breakage.

After several tries, we eventually configured the machine as a LAN client using the MegaHertz 10Base-T card. One cautionary note for users who plan to use the Ethernet card in a 16-bit environment: The card's four drivers reduced the available base RAM to dangerously low levels. And when we tried loading the drivers high, they failed to work properly.

Nice touches built in to the unit help you avoid contortions in lining up the infrared ports of the laptop and external devices. The P150 contains one fast infrared data port in the front of the machine and another in the back. Security consists of a cable lock receptacle and a boot erasable programmable read-only memory that can store multiple passwords.

Some of the not-so-nice things we noticed about the P150 are its cramped 85-key keyboard and a trackball that seemed to have a mind of its own. But the keyboard offered some positives: a good feel to the keys, a full set of 12 function keys and — thankfully — Alt, Control, Shift and cursor keys where we expected to find them. Dell includes a utility to slow the movement of the mouse cursor, but the problem resulted from the trackball's rotating ease.

WATCH FOR HEAT BUILDUP

The Intel Corp. CPU runs at 3.3V, but heat buildup is still a concern. Thus, the P150 contains a small, sensor-controlled fan. The fan, the CD-ROM drive and the larger and brighter screen all take a toll on battery life. Even with aggressive power management — and we rate Dell's among the best — we could eke out no more than three hours per charge on the P150. The XPI 133 gave us close to five hours of power.

Although our test unit was preproduction, we found no operating flaws or manufacturing defects. Dell, which makes its own machines, says it designed the XPI P150ST from the table up to support the 150-MHz Pentium chip and enhanced presentations capabilities. Although the unit isn't quite as light as we like, we liked what we saw. The unit's incomparable display owes apologies to no one. ■

Millman operates the Data System Services Group, a networking and problem-solving consultancy, and is the co-author of the forthcoming *Netscape Server Bible*, from IDG Books Worldwide. He can be reached at hmillman@mcimail.com.

OVERVIEW: What notebook users really want

BY JAMES M. CONNOLLY

There's a disconnect in the notebook market.

Listen to the words that vendors use in their advertisements and marketing materials to describe their machines: "Powerful." "Fastest." "State-of-the-art." "Configurable."

Listen to what's important to the managers who buy notebooks: "Reliability." "Pricing." "Service and support."

The strange part is that even though the two groups take such different views of the same market, certain vendors keep their customers pretty satisfied.

Managers aired their opinions in a recent survey commissioned by *Computerworld*. We asked 200 notebook buyers at large organizations to rate products and then had them drill down into the reasons behind those grades and the factors that go into their notebook buying decisions.

The issue of reliability overwhelmed all other criteria. It was most often cited when managers listed factors with a role in their rating of vendors and as the single most important factor in their buying decisions.

How important is performance? It typically fell to fourth or fifth place in user rankings, even when all performance-related issues were combined. For example, reliability, pricing, compatibility and service/support all beat out a combination of performance issues as the most important decision factor.

The question of reliability can be a make-or-break issue for managers.

Charlie Auletto's users may not be typical of the corporate world, but the director of news data systems at CBS, Inc. in New York, judges the reliability of notebooks by putting them through hands-on tests.

"We do our own testing. We have correspondents who literally pound on the keys of the Toshibas, and they still work," Auletto says. Noting that news correspondents in a war zone or a jungle can't get replacement systems, he says, "Rather than go for light, we go for durable." CBS has been using primarily Toshiba America, Inc. notebooks for several years, having found that they hold up better than the IBM and Compaq machines it tried in the past.

Yet, like other managers, Auletto also cites a challenge: Although he's had good experiences overall with the Toshibas, that doesn't guarantee reliability every model year. Other users said the constant change in product lines makes it hard to know what they're getting in a particular product.

"I would prefer to have all my users with the same model, the same type year after year, but sometimes I can't even get the same model from day to day," says Marjorie H. Farver, director of information systems at the Visiting Nurse Association of Washington and Maryland. Her organization started off using IBM notebooks but brought Toshiba into the mix because of quality and availability issues in some IBM lines.

In general, surveyed users were pleased with their vendors, with 44% rating their overall satisfaction as "very good," and only 3% offering "poor" or "very poor" scores. Yet once managers looked beyond their primary vendors, the market didn't fare so well. Only 34% of managers said the industry as a whole is "very good" at meeting their needs.

The vendors most often cited as primary suppliers of notebooks included IBM, Toshiba, Compaq and Dell. There were relatively slight differences among the first three vendors in terms of user satisfaction, with each hovering around the industrywide 44% figure. But Dell excelled at satisfying its small customer base (18 of the 200 total respondents), with two-thirds of its users giving it "very good" scores.

What is the most important factor in your notebook buying decisions today?

FACTOR	% of respondents
Reliability	31
Pricing	15
Compatibility	7
Service/support	6.5
Performance/speed	6
Modularity	4.5
Availability	3
Display	3
Size	3

(Base: 200 managers responsible for buying notebook computers)

Connolly is *Computerworld*'s technology evaluations editor.

Top 10 vendors

U.S. portable shipments, second-quarter 1996, according to International Data Corp.

1. Toshiba America Irving, Calif. (714) 583-3000 www.toshiba.com	**2. IBM** Armonk, N.Y. (914)765-1900 www.ibm.com	**3. Texas Instruments, Inc.** Dallas, Texas (214) 995-2011 www.ti.com	**4. Compaq Computer** Houston, Texas (713) 370-0670 www.compaq.com	**5. NEC Corp.** Melville, N.Y. (516) 753-7000 www.nec.com
6. Dell Austin, Texas (800) 289-3355 www.dell.com	**7. Sharp Electronics Corp.** Mahwah, N.J. (201) 529-8200 www.sharp-usa.com	**8. Apple Computer, Inc.** Cupertino, Calif. (408) 996-1010 www.apple.com	**9. Micro Electronic, Inc.** Columbus, Ohio (614) 850-3000 www.microcenter.com	**10. AST Research, Inc.** Irvine, Calif. (714) 727-4141 www.ast.com



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- 10. Manufacturer (other then computer)
- 20. Finance/Insurance/Real Estate
- 30. Medical/Law/Education
- 40. Wholesale/Retail/Trede
- 50. Business Service (except DP)
- 60. Government - State/Federal/Local
- 65. Communications Systems/Public Utilities/Transportetion
- 70. Mining/Construction/Petroleum/ Refining/Agriculture
- 80. Manufacturer of Computers, Computer-Releted Systems or Peripherals
- 85. Systems Integretors, VARs, Computer Service Bureaus, Software Planning & Consulting Services
- 90. Computer/Peripheral Dealer/Dist./ Retailer
- 95. Other_____ (Please specify)

2. **TITLE/FUNCTION** (Circle one)

IS/MIS/DP MANAGEMENT
- 19. Chief Information Officer/Vice President/ Asst. VP IS/MIS/DP Management
- 21. Dir./Mgr. MIS Services, Information Center
- 22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr. /PC Mgr., Tech Planning, Administrative Services
- 23. Dir./Mgr. Sys. Development, Systems Architecture
- 31. Programming Management, Software Developers
- 41. Engineering, Scientific, R&D, Tech. Management
- 60. Sys. Integrators/VARs/Consulting Mgt.

CORPORATE MANAGEMENT
- 11. President, Owner/Partner,General Mgr.
- 12. Vice President, Asst. VP
- 13. Treasurer,Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
- 51. Sales & Mktg. Management
- 70. Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
- 80. Information Centers/Libraries, Educators, Journalists, Students
- 90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

Operating Systems
- (a) Solaris
- (b) Netware
- (c) OS/2
- (d) Unix
- (e) Mac OS
- (f) Windows NT
- (g) Windows
- (h) NeXTstep

App. Development Products ❒ Yes ❒ No

Networking Products ❒ Yes ❒ No

4. How many people are employed at this location and in your entire organization, including all of its branches, divisions and subsidiaries? (Select only one per column.)

	1. At this location	2. Entire Organization
A. 20,000 +	❒	❒
B. 10,000 –19,999	❒	❒
C. 5,000 – 9,999	❒	❒
D. 1,000 – 4,999	❒	❒
E. 500 – 999	❒	❒
F. 100 – 499	❒	❒
G. 50 – 99	❒	❒
H. 20 – 49	❒	❒
J. 10 – 19	❒	❒
K. 1– 9	❒	❒

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95. Other_____ (Please specify)

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22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr. /PC Mgr., Tech Planning, Administrative Services
23. Dir./Mgr. Sys. Development, Systems Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Mgt.
CORPORATE MANAGEMENT
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12. Vice President, Asst. VP
13. Treasurer,Controller, Financial Officer
DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Mgt.
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90. Other Titled Personnel

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Operating Systems
(a) Soleris
(b) Netware
(c) OS/2
(d) Unix
(e) Mac OS
(f) Windows NT
(g) Windows
(h) NeXTstep
App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No

4. How many people are employed at this location and in your entire organization, including all of its branches, divisions and subsidiaries? (Select only one per column.)

	1. At this location	2. Entire Organization
A. 20,000 +	❒	❒
B. 10,000 –19,999	❒	❒
C. 5,000 – 9,999	❒	❒
D. 1,000 – 4,999	❒	❒
E. 500 – 999	❒	❒
F. 100 – 499	❒	❒
G. 50 – 99	❒	❒
H. 20 – 49	❒	❒
J. 10 – 19	❒	❒
K. 1– 9	❒	❒

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Sneak Peek

By Amy Malloy



MIKE MCGUIRE, a senior industry analyst at Dataquest in San Jose, Calif., makes the following predictions for the notebook market over the next year:

- The second half of this year will be a very price-competitive market.
- Vendors will be stretching for differentiation. Toshiba owned the market for the past couple of years and has been setting the tone. It will be tough to deviate from that.
- Value notebooks will continue to dominate premium notebooks. The market may shift a bit in favor of premium notebooks, but they won't surpass value notebooks.
- There will be more 12-in. screen notebooks on the high end.
- Beyond next year, people will start breaking from the typical form factor. There will be 8.5- by 11-in. and 9- by 12-in. screens.
- The transportable might return. It will have more room to put bigger chips and a slot for a Peripheral Component Interconnect card, and it will bring some interesting benefits. It won't have a battery, but about the only time one is needed is on a plane.
- Storage capacity is going to go up, but price will stay the same. There will be faster, larger hard drives.



RANDAL GIUSTO, an analyst at International Data Corp. in Framingham, Mass., predicts the notebook market will offer the following next year:

- The next version of Intel's processor will be in upcoming notebooks.
- Notebooks will have 2G- and 3G-byte hard drives.
- A bunch of technologies — such as fast infrared, videoconferencing, "firewire," "cardbus" and Universal Serial Bus — will be hyped, overtalked and underused. These products will be delayed. Most likely, these technologies won't be mainstream next year, but there'll be a lot of press on them.
- There may be $1,599 notebooks by the middle of next year. There are already $1,799 notebooks.
- Notebooks are bulking up. Some that weigh seven or eight pounds are coming out, but they'll be a hard sell. There will be thin and light notebooks, and there will be larger notebooks, but there won't be a lot in the middle, which is what users are looking for.
- Vendors will be looking at Digital Video Disc (DVD) — a disc similar to the CD-ROM that can store as much as 17G bytes — but it won't have a big impact next year. DVD drives will be relatively large, and that will make notebooks larger. There should be somebody announcing it toward the end of next year. Right now, it doesn't look as if the technology will have a significant impact on the market, and there is no DVD software at this point.

SNIPPETS

(A compilation of recent industry reviews on notebooks)

"The Dell Latitude LM P133ST is a hands-down Best Buy for users looking for a desktop replacement. . . . The Latitude's design is classy and uncluttered, and the unit is very sturdy. The keyboard is well laid out, with large, full-travel keys. The only compromise is through the function keys, which are whittled down to about half the size of the other keys."

— *PC World*, October 1996

"Micron's Millenia TransPort P150 and Nimantic's Orion 6X 150 are loaded, but they don't leave their 133-MHz counterparts in the dust when it comes to performance."

— *Windows Magazine*, October 1996

"The EPS Apex L-133 from EPS Technologies may not be the pinnacle of notebook computing, as its name implies, but it does indeed have high points. Its performance and expandability should meet the needs of most users today and well down the road."

— *Computer Shopper*, October 1996

"Fujitsu and Hitachi . . . have finally brought portables to the fray. Fujitsu's Montego — the ultralightweight member of the company's new line of portables — is aimed squarely at Toshiba's compact Portege 610CT subnotebook. . . . Hitachi took a different route with its M-133T; it's a full-bore desktop replacement. Powered by a 133-MHz Pentium, the machine is multimedia-ready."

— *PC/Computing*, October 1996

"Somewhere between the superexpensive Toshiba Tecra 720CDT and the budget-level Satellite 100CS is the $3,298 Toshiba Satellite Pro 420CDS. With its high-end features and low-cost design, the 420CDS is perfect for people who want multimedia on the road but don't want to spend a fortune."

— *PC World*, September 1996

"If you need the fastest notebook on the block, the ThinkPad 760E is for you. . . . But like fast, hot automobiles, the 760E costs a lot of money — $6,344 to be exact."

— *PC World*, September 1996

"Compaq Computer Corp.'s recently released Armada 4100 model line provides a good balance of portability and high-end features."

— *Computerworld*, Sept. 2, 1996

"The $4,999 Compaq LTE 5300 and $5,599 Gateway Solo 133 don't offer the most features, smallest footprint or lightest case, but they have enough power to handle most tasks."

— *Computerworld*, Aug. 26, 1996

In a review of 17 notebooks, "Toshiba's Tecra 720 weighed the most, but its features delivered the most solid punch."

— *Government Computer News*, Aug. 5, 1996

IBM's ups and downs

POOR SUPPLY, GIVEN ENOUGH TIME, WILL KILL MARKET SHARE. IBM was the supreme notebook vendor at the beginning of the year but since then has been in a steady tailspin, according to Market Mind Share data from *Computerworld*'s Information Management Division.

The Mind Share survey asks the open-ended question, "Whom do you expect your primary notebook vendor to be one year from now?" The data illustrated at right could mean hard times for IBM.

How do the mighty fall so fast? "It's the basic problem of availability," says David Tremblay, a senior industry analyst at Computer Intelligence in La Jolla, Calif. "It has nothing to do with customers' unwillingness to buy." In fact, in a separate survey of 200 notebook users, IBM ranked the highest for overall customer satisfaction.

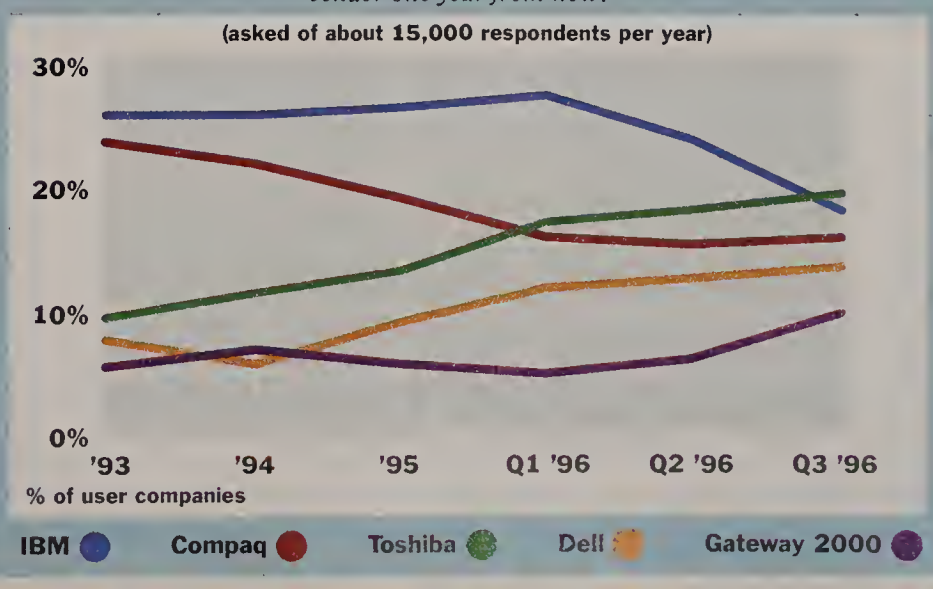
"They're truly reliable systems," says Alex Sarafiar, systems analyst at Source One Mortgage Service Corp. in Farmington, Mich. "Whether early- or late-model, we've not had any problems with our ThinkPads."

The winner of this shakeout appears to be Toshiba, which has been increasing its mind share since 1993. "It has good products across the line, it's managed the supply aspect a little better, and it's owned the retail channel lately. The only thing it's not doing is selling direct," Tremblay says.

— *Kevin Burden*

VENDOR DIRECTIONS

Users were asked on these dates, "Whom do you expect will be your primary notebook vendor one year from now?"



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In Depth

Winging it



STEVE WOIT

A new study shows that users prefer to learn software through trial and error, which is bound to ruffle some feathers in the training community/ By Candice Harp

Before you spend another dollar on training, before you send another unsuspecting new hire to a daylong seminar, know this: In a recent national survey, some of the most common — and expensive — forms of software training scored low marks for usefulness, and high marks went to the least expensive forms of learning.

Information systems managers and training departments should take a long look at how much horsepower they're getting out of their budgets and whether the training department as we know it is a going concern.

Geiger Bros., a Lewiston, Maine, manufacturer of calendars and datebooks (including the *Farmer's Almanac*), no longer provides in-house classes. The firm can't find enough beginners to fill the room. "Most of our users' knowledge about software now comes from experimenting with the package or asking peers for assistance," says Bill Clarke, an education specialist at Geiger Bros.

The national study, which I conducted, included 263 participants. They were randomly drawn from a major software vendor's database of licensed users. My contract prohibits me from identifying the vendor, which partially funded the survey — but the study included all types and brands of office automation software: word processors, spreadsheets, databases and other PC desktop applications. In telephone interviews, participants

Winging it, *page 109*

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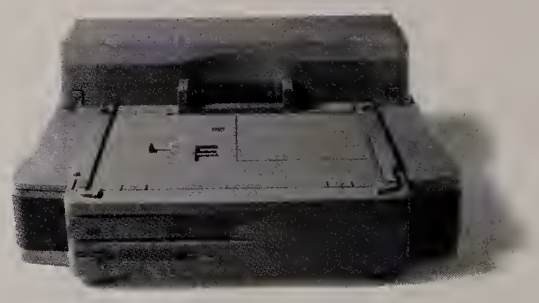


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How learning activities rank

Rank	Activity	Average score	Rank	Activity	Average score
1	Experimenting (trial and error)	4.37	16	Reading magazines about the program	3.47
2	Relying on program consistency	4.23	17	Looking at examples and sample files before beginning	3.43
3	Asking co-workers for help	3.95	18	Using the program's online tutorial	3.40
4	Searching program menus	3.94	19	Attending university courses on the software topic	3.29
5	Reading prompts and messages	3.90	20	Thinking about how other, dissimilar programs work	3.26
6	Thinking about how similar programs work	3.87	21	Visualizing how someone else used the software step-by-step to accomplish a task	3.21
7	Asking an instructor a question after a training course	3.87	22	Calling your in-house help desk	3.18
8	Working one-on-one with a professional consultant	3.83	23	Attending a formal training seminar on the software	3.17
9	Looking up answers to questions in the program's reference manual	3.79	24	Using reference cards and keyboard templates	3.15
10	Asking a friend	3.79	25	Following CBT courses produced by a third party	3.14
11	Thinking about how an earlier version of the program worked	3.77	26	Accessing bulletin board services	3.12
12	Calling vendor support	3.72	27	Attending user support groups for the product	3.10
13	Reading a third-party book	3.71	28	Rereading training manuals received at a training seminar	3.06
14	Using online Help	3.60	29	Watching videotaped lectures and demonstrations	2.63
15	Remembering someone else's work and knowing a task can be done with the software	3.57	30	Attending professional trade meetings (not in the computer industry)	2.52

Winging it

CONTINUED FROM PAGE 107

were asked to rate the usefulness of 30 learning activities. They were allowed to comment freely on each activity.

Both traditional and nontraditional ways of learning software were examined. Traditional types of learning include formal training seminars, computer-based training (CBT), online tutorials and videos. Nontraditional methods include experimenting, asking co-workers and friends for help and relying on the prompts and menus of programs.

What was the most useful method of learning software? Experimenting. Yes, simple trial and error scored highest of the 30 learning activities (see the table above for complete rankings).

Perhaps the most surprising result is the poor showing of seminars. To many IS directors, "software training" and "classroom seminar" are synonymous. But training seminars finished 23rd in usefulness. Similarly, many companies offer CBT, yet it ranked 25th.

What works

"We believe in an experiential approach to learning," says Susan Garrity, senior manager of organizational and professional development at Ernst & Young Professional and Organizational Development Group in Cleveland. "For example, we quickly get students involved in hands-on activities. Instead of long lectures, we give short 'lecturettes' and get them going quickly." Ernst & Young spends more than $13 million per year on IS training for its 5,000 management consultants, Garrity says.

In contrast, some companies actually inhibit such experimentation. For example, many network administrators deny users access to a new program until they've attended a formal training seminar.

According to Marsha Churchman, group lead of clinical systems at Kaiser Permanente of Southern California, independent experimentation should be encouraged but cautiously employed because "new or inexperienced users could inadvertently move or delete programs that could become a major support issue."

Another example of companies overlooking good training methods is the shortage of reference manuals on users' desktops. Putting a reference manual or third-party guide on every desk costs less than $50 per user, and these tools ranked 9th and 13th, respectively, in usefulness.

Large companies in particular think nothing of sending users to training seminars for a new program, yet they rarely provide reference manuals. According to the study, the training manuals passed out in seminars are a poor substitute — they ranked a dismal 28th.

Churchman, who manages the deployment of PCs to more than 3,000 physicians, makes reference books a high priority. She says 75% of the physicians have third-party books, but she is aiming for 100%.

What flops

Why are training seminars ineffective? A common remark from participants was, "Why should I go to a full day of training when I need only 10 or 15 minutes of questions answered for me?" Instructors would do better to teach fewer formal training courses and make themselves more available for brief one-on-one consultations.

Another reason seminars don't pack the punch they once did is experience mix. Ten years ago, you could fill a classroom with users who never had used a spreadsheet or word processor. Today, any given training room includes both newbies and students who already know a program similar to the one being taught. Thus, the instructor must teach to the middle of the knowledge level — and neither experienced nor inexperienced users achieve their objectives.

Clearly, the role of training needs to change.

Gary Miller, training coordinator at the Minnesota Department of Natural Resources, delivers training to more than 3,000 employees. Miller says, "A lot of people still like the familiar setting of the classroom. They appreciate time away from the office, without interruptions, where they can have really focused learning."

But in an effort to improve its usefulness, the Department of Natural Resources has implemented four-hour courses to replace the full-day format, and trainers now provide more job-specific one-on-one instruction. Miller says because savvy users rarely attend classroom training, brief consulting sessions are provided instead.

Clarke says his staff has transitioned from training to performance support. "We found classroom training useful only for the basics," he says. He now provides IS consulting to improve the workflow of employees and departments.

Georgia State University also has recognized that training needs are shifting for its 2,000 users. According to Jane Leonard, manager of customer support for information systems and technology at the university, less than 10% of the university's training courses are full-day affairs, with three- and four-hour courses now the rule. Moreover, the department offers "Express Training" courses that last less than an hour for specific topics such as WordPerfect merging, the Internet and electronic mail, Leonard says.

The key to implementing the findings of this research is to know your users. What is their experience level? Are they mostly clerical staff, or are they primarily managers and knowledge workers handling their own administrative support? What kind of learners do they tend to be, self-directed or dependent?

Armed with this knowledge and the study results, you might spare users a long day in a hot classroom. ■

Harp is a researcher and training and development consultant in Atlanta. Her Internet address is charp@is.custard.com.

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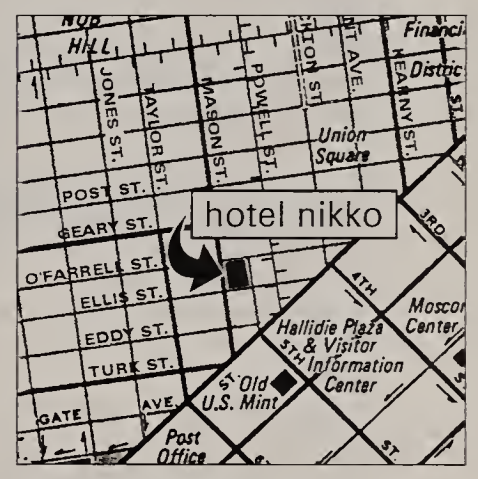
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Computer Careers

CYBERCRUITING

In the scramble to catch top IS talent, recruiters are increasingly using the 'net

BY ROSEMARY CAFASSO

So, you're an information systems manager who isn't recruiting online. Are you starting to feel like a dolt?

Maybe this simple fact would suggest that you should do the following: For about $4,000, you could get an annual contract with one of the commercial online jobs database companies and post jobs all year long. Or, you could do things the traditional way. Take a onetime hit in the Sunday edition of a big metropolitan newspaper, and spend anywhere from five to 10 times that amount.

Obviously, there's more to online recruiting than dollars and cents. So don't panic just yet and post jobs at all sorts of World Wide Web sites and newsgroups.

Instead, take a few lessons from hiring managers who are using this new venue. Take a cautious approach, and use online resources to extend — not replace — your current recruiting strategy.

Several hiring managers recently said they aren't ready to drop conventional methods of recruiting. Print advertisement and job fairs, quite simply, work. Instead, hiring managers are adding online tools, such as their company's corporate Web site along with a few third-party online databases, to enhance those efforts. The same managers continue to rely on the more basic functions of the Internet, such as communicating and networking with potential job applicants, to round out their recruitment strategies.

The information systems department at Cigna Corp. in Philadelphia, for example, has yet to jump on to the commercial jobs databases, such as The Monsterboard or Online Career Center. But it's using the Internet to court promising interns. In one case, a particularly talented intern was given a 10-hour-per-week project and a Cigna electronic-mail address so that he could continue

CYBERCRUITERS

Recruiters who use the Internet as their primary means of finding job applicants.

Source: Austin Knight

BEWARE 'HITS' HYPE

Some recruiters say not all Web sites or career services are credible operations. Austin Knight, a recruitment advertising agency in Sausalito, Calif., wouldn't name shady operators, but warns that IS managers need to evaluate a supplier if it isn't well-known to them.

"There are sites that are counting on recruiters not being technically savvy, and they are misusing Internet statistics," says Ben Klau, the agency's Internet recruiting specialist.

A few tips from the experts: If a company will provide only the number of hits to its site or boasts about the potential of millions of visitors, take heed. The measurement of hits is misleading because one visitor can hit dozens of points on a site. The more reputable firms provide different statistics. The Monsterboard, for example, estimates it receives about 20,000 visitors per day, each of whom could be responsible for dozens of hits.

— Rosemary Cafasso

MAKING ONLINE RECRUITING WORK

IS managers who are already online offer the following tips for effective recruiting:

- Make the corporate home page the core of an Internet recruitment strategy.
- Continually enhance the corporate site with graphics and links to other job-related information so candidates will return.
- Consider investing staff time for resume cruising (searching the resume databases) to develop a more proactive technique.
- Encourage employees to network online in chat forums where IS professionals may hang out.



NICK KELSH

Cigna's Tom Vines: *'We use the Internet to help facilitate the recruiting process'*

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to work for Cigna while at school, says Tom Vines, a vice president of human resources at the insurance giant.

"We use the Internet to help facilitate the recruiting process," Vines says. "This allows that student to stay connected to Cigna."

Other IS hiring managers are slowly incorporating online resources into their strategies. They say they're just beginning to find online the right types of applicants with the necessary mix of industry, business and technical expertise.

"There are a lot more purely technical people out there than the ones with the combination of business and technical skills [we need]," says Cary Serif, vice president of applied technology at Huntington Bancshares, Inc. in Columbus, Ohio. "We will start using it more in the future, no question. But I think it will be a good year before it becomes a mainstay."

The IS department at State Street Bank & Trust Co. in Boston is another organization that plans to rely heavily on its corporate Web site for recruitment. James Curran, a senior vice president of management information services, says his group has launched a project to provide a more robust recruitment section to the bank's Web site (www.statestreet.com).

Although the site includes job postings, the idea is to provide tools to job applicants so they can more easily input data about themselves and gather information about the bank. Curran says his team hopes to complete that effort by year's end.

Start at your site

If you want to launch an online effort, hiring managers say the best place to start is with your company's Web site. The corporate Web site gives the hiring manager more control over the content of ads and the tracking of responses than third-party databases. In fact, many companies, including Hewlett-Packard Co., PeopleSoft, Inc. and Powersoft Corp., say they plan to rely on the home page almost exclusively.

"My feeling is: Be a little cautious and use the home page," says Tracy Weaver, vice president of human resources at Powersoft. "As this [market] shakes out and you know who is credible, then you can link [your home page to other services]. But there are a lot of people out there, and you don't know who they are."

One effective approach is to stick with the big-name sites. But some observers say that approach could cut off access to the job candidates who are true "gems" and may use only smaller sites. And even when you stick with the credible ones, it's difficult to determine which site will be best for your company.

Unfortunately, there aren't major differences among the big-name sites. CareerMosaic and The Monsterboard are two serious rivals and will point out an array of differences in how they present information and the different components that make up their sites. But each offers jobs and resume databases and a range of services such as career counseling, resume services and online job fairs. As a result, hiring managers say it's best to pilot a few sites and then select one or two with which you are most comfortable.

For three years, Lotus Development Corp. has been using E-span, one of the older career services. Lotus last year added its home page to its recruitment efforts. The company sees that combination as an effective online strategy, says Christine Leonardo, a human resources consultant at Lotus. "I wouldn't recommend paying for more than one service," Leonardo says. "E-span posts our jobs in about a dozen different places. We get good coverage, good exposure." ■

Cafasso is *Computerworld*'s senior editor, Finance & Investing.

ONLINE RECRUITING OPTIONS

Industry estimates vary, but at any given time, there are more than 3 million job postings on the Internet. That includes all newsgroups, commercial databases and recruitment services.

Third-party Web sites:

Online Career Center
www.occ.com
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Software Consultant, Part Modeling w/Bachelor's/equiv in Mech'l, Mfg or Ind'l Engg & 6 yrs exp in mech'l design S/W development for CAD systems, including 2 yrs' exp in geometric modeling using C or C++ in UNIX. Will accept Master's/equiv in same w/4 yrs' same exp or Doctorate/equiv w/2 yrs' exp. Work independently on major mech'l design subsystems in CAD; research, develop & prototype new concepts in topology tracking & design process rep using C++ COM/OLE; describe how new concepts will enhance existing technology & make current product better; create & document new algorithm for topology tracking for use by team; develop heuristic-based algorithm for advanced topology tracking; act as tech'l lead in light weight rep, topology tracking & design process rep; serve as tech'l liaison for design of subsystem to make ACIS geometric modeling history continuous/perm between development sessions. $53,000/yr. Work 7:15-4:30pm M-F. Resumes only to: M. Thomas, AL State Employment Service, Job Order AL6021987, 2535 Sparkman Dr., Huntsville, AL 35810-3825. EOE.

Systems Analyst: Design, develop, test and integrate data entries and database evolution capabilities for telephone switch and network systems. Job includes: define, review, and develop new software architecture; design, execute and manage system test for 5ESS switch software; analyze test data; document test reports. Tools: UNIX & Shell scripts, C/C++, relational DB, OO design/programming, TCP/IP, X-25, ISDN, WWW, DNS, NIS, Sun OS 5.3, Solaris 2.3, vi/nroff/troff editor, & Client/Server network. Must have M.S. in Computer Science, 6 mon. exp. in the job offered or as a programmer, & 6 mon. exp. with above tools. $42,000/year, full time. Must have proof of legal authority to work permanently in the U.S.. Send 2 copies of resume & cover letter to Jeff Fang, Utek, Inc., 915 Harger Road, Oak Brook, IL 60521. An employer paid Ad.

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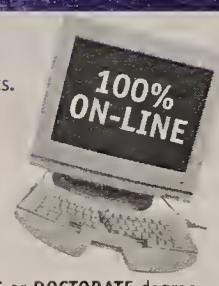
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Consultant. Design, develop, implement & test software for management information & telecommunication systems. Schedule, execute & control diagnostics. Tools: KSH; C; C++; ESS5; MML; troff; Oracle SQL*Plus; ECMS; ISO 9000; xcip; X.25; Assembly; UNIX; OS. M.S. in Computer Science as well as 1 yr exp. in job offered or as Software Engineer required. Previous exp. must include: software development for telecommunications; KSH; C; Oracle SQL*Plus; UNIX. 40 hrs/wk, 9am-5pm, $45,000/yr. Must have proof of legal authority to work permanently in the U.S. Send resume to: Jeff Fang, Utek, Inc., 915 Harger Rd., Ste. 350, Oak Brook, IL 60521. (630) 573-9888.

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Systems Analyst (Consultant). Develop & implement information systems (eg, financials, mfg. & hr) based on Oracle RDBMS & 4GL app. dev. tools. Analyze clients' Business Info. Flow reqs. using CASE, formulate enterprise models, & design & develop custom applications. Provide technical & functional solutions to effectively implement an into. systems in a variety of computing & business envrnmnts. Implmnt. on Unix & PC systems & networks. Must have BSCS/EE & min. 2 yrs. exp. In analysis & design of business apps. using Oracle RDBMS technology in a C/Unix environment. MSCS will substitute tor 1 yr. of such exp. More than 70% travel to client sites thruout Florida & the USA. $4592/mo. Home office in Tampa, FL. Resume to: CW-184006, Computerworld, Inc., P.O. Box 9171, Framingham, MA 01701-9171.

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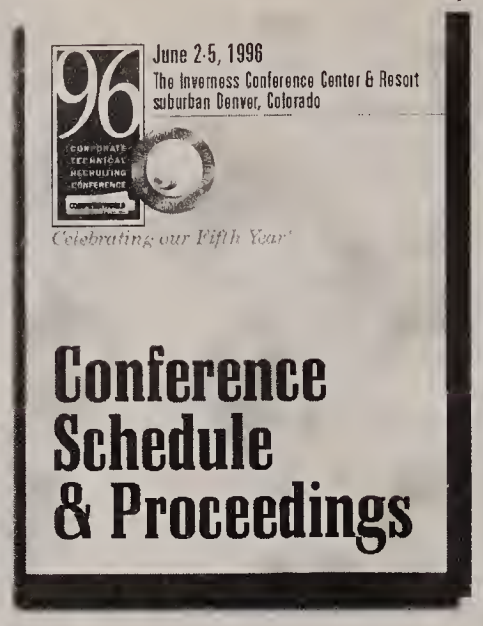
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Bachelor's degree in Engineering (BSEE preferred) and a minimum of 3 years' experience in real-time man-in-the-loop and/or hardware-in-the-loop simulation required. Lead/senior positions require knowledge of details of software and hardware interaction and its effect on system performance. Ability to obtain secret clearance also required.

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Will participate in the development of systems and software requirements definition for real-time simulation systems. All software developed in Ada using the Relational APEX development environment hosted on SGI UNIX platforms. Must have at least 5 years' technical expertise in the following areas:

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- Development of data collection systems, data analysis tools and products, scenario generation system, and simulation information management system.
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- OFP in-the-loop simulation.

Bachelor's degree in Electrical Engineering, Physics or Computer Science preferred. Must have current secret clearance or readily updatable, qualify for top secret, and be briefable to F-22 project levels.

SOFTWARE PROCESS STANDARDS

• Performs software engineering capability assessments, software product management, software product evaluation, software documentation, software metrics, software reuse, and software library functions. Must be familiar with ISO 12207, MIL-STD-498, FAA-DoD-178 A/B, ISO 9000 Series, and CMU/SEI-93-TR-24 Capability Maturity Model. Requires BSCS and 8+ years' experience in software engincering processes, software development (preferably Ada or C), and software program management for major DoD programs.

• Designs and develops CASE Tools and integrated development environments. Must possess knowledge on instantiating current software development processes, methods, and tools into the S/SEE for optimal horizontal data integration in the S/SEE. Knowledge of ATIS, PCTE, POSIX, CORBA, DCE, Motif, TCP/IP, and COHESION Team/SEE highly desired. BSCS, BSEE or equivalent and 8+ years' experience in the development of CASE Tools and integrated environments required.

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Coordinates software integration into vehicle system controller and reviews and dispositions software functional qualification testing procedures and results. BSCS, BSEE, BSAE or related and 5+ years' experience in developing software for real-time, embedded control systems required. Must have knowledge of MIL-STD-2167A and hands-on lab experience with testing hardware-in-the-loop.

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Performs change management activities for F-22 software products or develops and maintains Oracle databases., BSCS, BSE or equivalent and 5+ years' experience in software development in a DoD environment required. Must have knowledge of CASE Tools, Ada, dataleaf, and Open VMS operating systems (VAX and Alpha).

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Dr. William Swan, President, Swan Consulting

The Critical Importance of Soft Skills and the "Invisible Assembly Line"
Todd Schmick, Priority Management Systems, Inc.

Immigration Issues
David P. Berry, Esquire, Berry & Appleman

Proactive Recruitment Techniques
Dave Drugman, President, Bay Cities Research, Inc.

12:15pm **Luncheon Keynote: Industry Trends**

Repeat of Concurrent Sessions

Town Hall Forum
John Younger, President, y-net

6:00pm **Program ends**

Selected sessions include:

Proactive Recruitment Techniques



Dave Drugman, President, Bay Cities Research, Inc.

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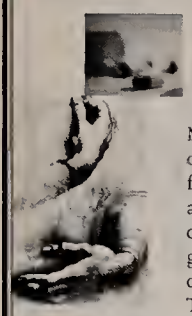
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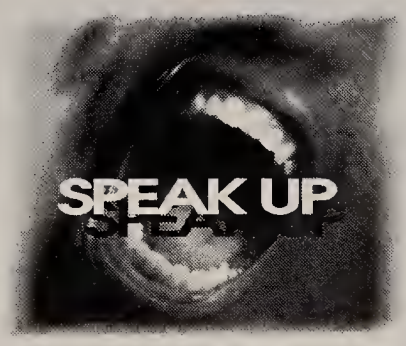
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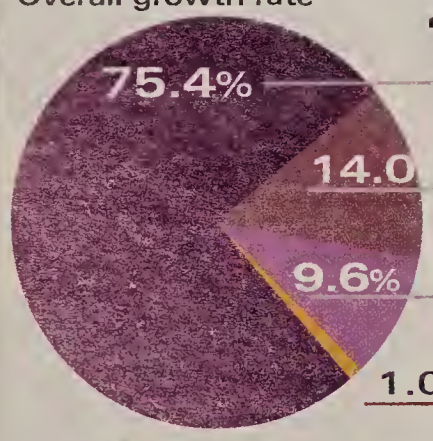
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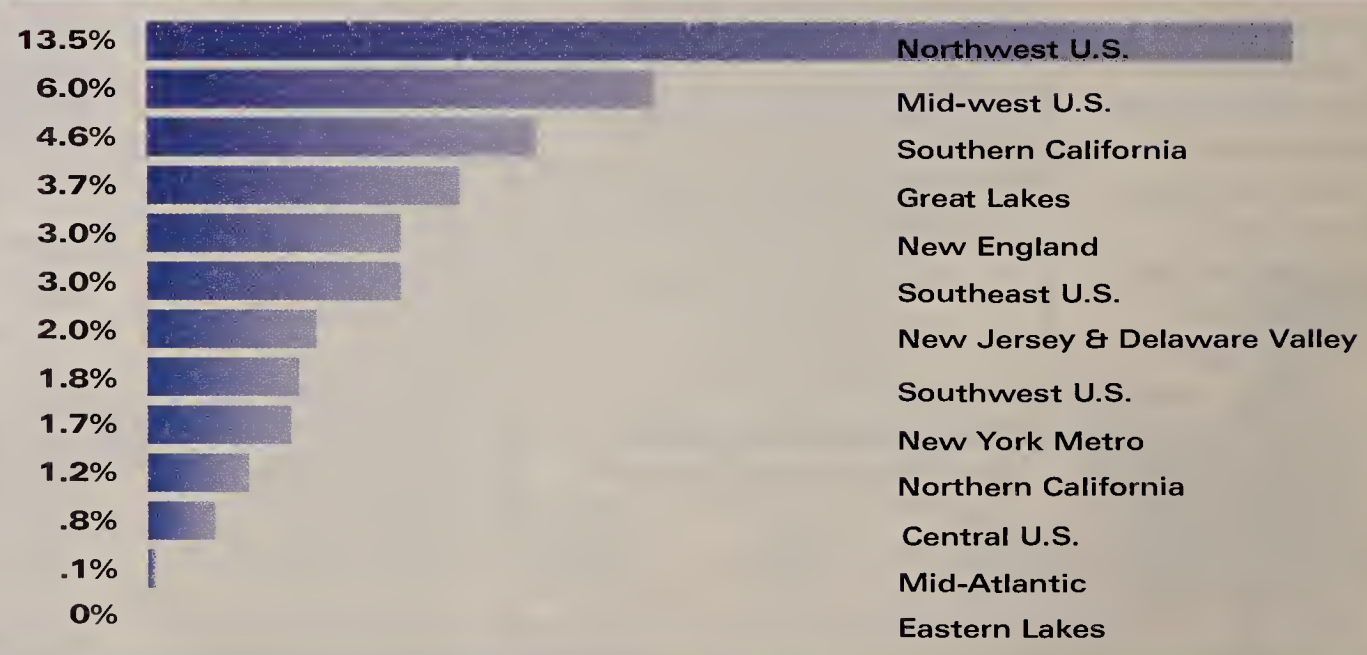
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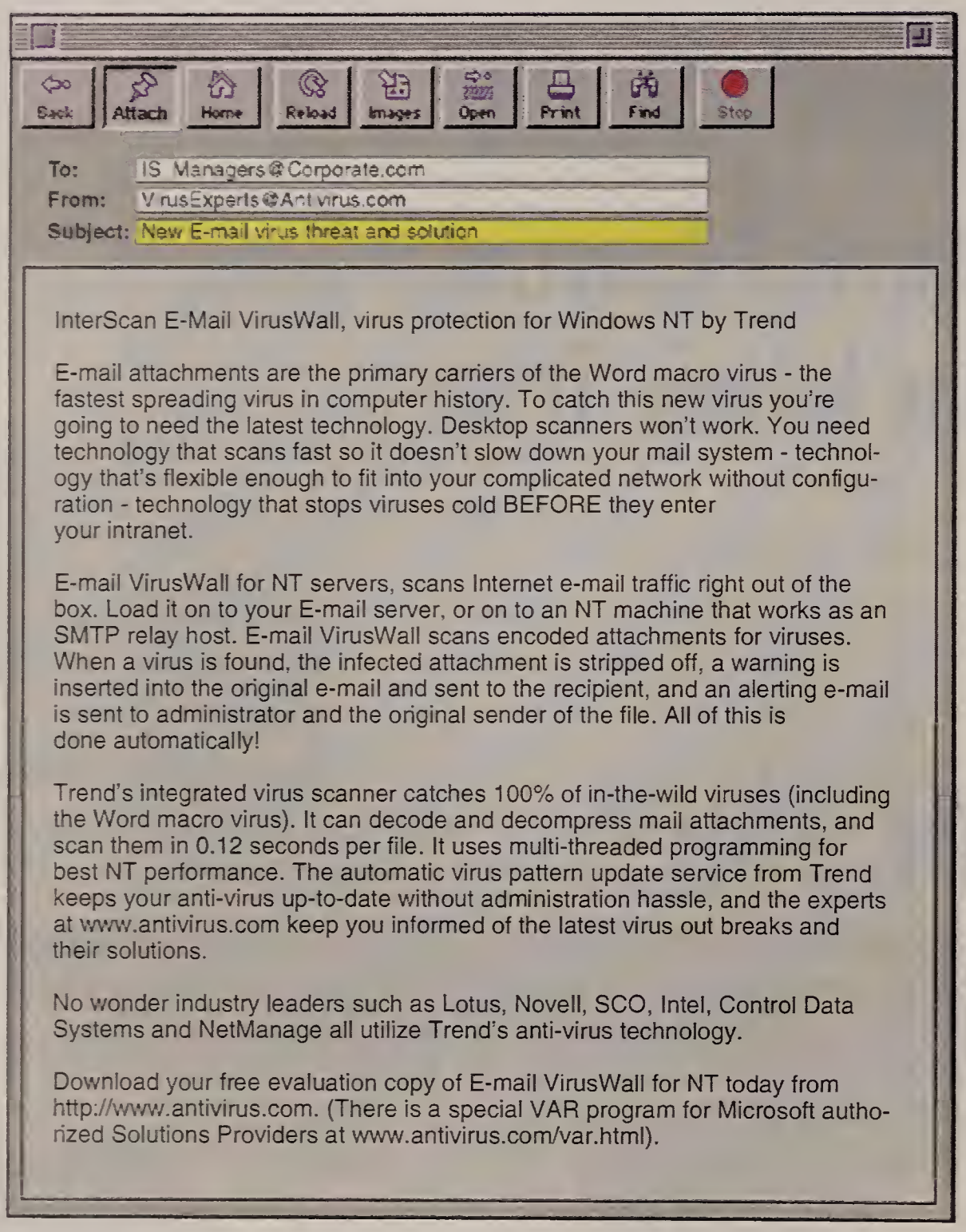
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TECHNOLOGY ROUNDUP

Marketplace

Client/server testing tools take off

By Alan Radding

Faced with growing user expectations of quality and the complexity of client/server code, organizations are increasingly turning to automated testing tools.

"The market is taking off," says Dick Heiman, a senior analyst for application development tools at International Data Corp. (IDC) in Framingham, Mass. According to IDC, the worldwide market for automated client/server testing software totaled less than $100 million last year. It is projected to grow at a 60% compound annual rate and surpass $1 billion by 2000.

Comprehensive testing is the only way to ensure that software will work as the developer intended when it gets into the hands of users who aren't particularly delicate about the way they bang on an application.

Major players in the U.S. client/server Windows application testing market are a handful of relatively small companies. According to The Standish Group International, Inc., a research firm in Dennis, Mass., Mercury Interactive Corp. in Sunnyvale, Calif., is the leader with $25 million in 1995 sales, representing 36% of the market. SQA, Inc. in Woburn, Mass., follows with $11.4 million in sales, or 16% of the market. Segue Software, Inc. in Newton, Mass., is third with $7.1 million in sales, or 10% of the market. Microsoft Corp. in Redmond, Wash. — the only heavyweight in the pack — and AutoTester, Inc. in Dallas fill out the top five.

The Standish Group divides client/server testing tools into two camps: development testing tools used to find memory leaks and other technical glitches; and quality-assurance tools used for graphical user interface (GUI) testing, load testing, regression testing, configuration testing, cross-platform testing and even World Wide Web testing, says Sandy Taylor, a market analyst at The Standish Group.

IDC classifies testing tools into three categories: GUI testing, load/performance and test management. The market largely has been segregated between Windows and Unix, with Unix tools being more mature. Recently, however, tools that support both platforms have been introduced.

GUI testing — the process of clicking every button and menu option in an application to ensure that everything works consistently — represents the first level of Windows testing. That is where most of the tool action has taken place. All the leading tools provide some level of GUI testing. The tools typically use the capture/replay method of GUI testing in which the testing tool saves every action, drag and drop, mouse click and keystroke that the tester performs in the form of a script that can be replayed. The tool later runs the script and compares the results with what the tester experienced the first time.

Load/performance, or stress testing, runs the program under heavy loads for sustained periods to see if and when it breaks. Previously, you had to dedicate a roomful of PCs, each running automated test scripts, to perform that kind of testing. The newest tools use one machine to simulate multiple clients that hammer away at an application.

Test management helps to systematically plan and organize testing. It tracks testing activities and provides a methodology to determine what to test, along with when and how. "A methodology can save weeks of time," says Karen Moser, a senior analyst at Aberdeen Group, Inc. in Boston.

None of the tools has all of these functions, Moser says, but the suite of products from market leader Mercury Interactive comes closest.

The selection of a vendor should be based on the type of testing you want; platforms you run; ease of use; planning and implementation methodology; reporting capabilities; and integration with your particular development environment. Ease of use is particularly important. Programmers typically hate testing. If the tool is at all cumbersome to use, they will have an excuse to cut testing short or not test at all. ■

Radding is a freelance writer in Newton, Mass.

Leading Windows application testing tools

▶ **Mercury Interactive (www.merc-int.com)** A broad set of testing tools that includes WinRunner, XRunner and LoadRunner; integrates with leading development tool environments such as PowerBuilder. **Platforms:** Windows 3.1, 95 and NT; Unix.

▶ **SQA (www.sqa.com)** Comprehensive test planning, management and methodology; GUI testing with SQA Robot. **Platforms:** Windows 3.1, 95 and NT.

▶ **Segue Software (www.segue.com)** Distributed testing over the network; extensive database testing; Web and intranet testing; test planning and management; integration with popular RAD environments such as Visual Basic. **Platforms:** Windows 3.1, 95 and NT; OS/2; others.

▶ **AutoTester (www.autotester.com)** Comes from the mainframe environment; supports enterprisewide testing (mainframe, midrange and PC); distributed testing; application-specific testing (SAP R/3). **Platforms:** Windows 3.1, 95 and NT; OS/2.

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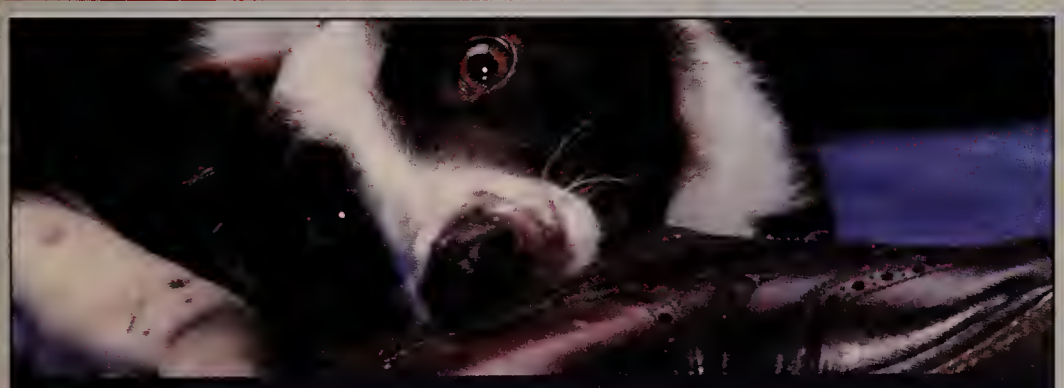
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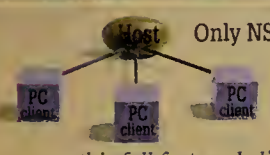
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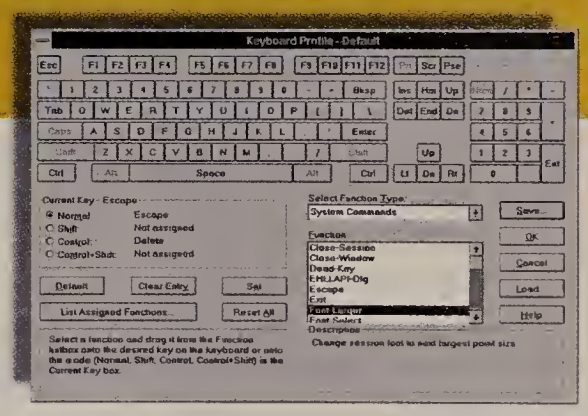
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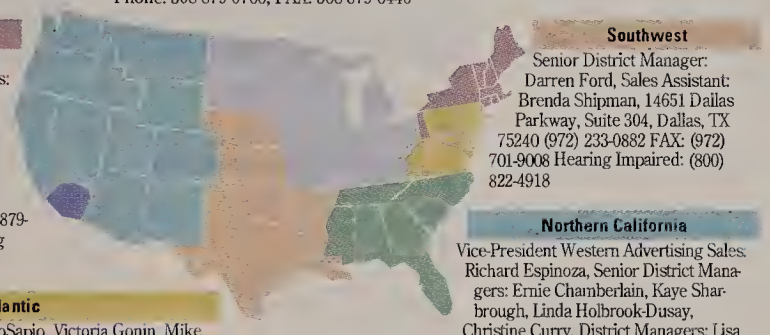
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Open Market gets a boost from AT&T, 131

Next week: Data warehousing opportunities

A Fool's Paradise

The Motley Fool proves useful for this novice investor

I wanted to join up. I'd seen their cool hats and read the interviews. I wanted the "Foolish" experience.

After all, The Motley Fool is a wildly popular online investing forum on America Online, Inc. that attracts about 275,000 visitors per month. The Motley Fool founders, brothers David and Tom Gardner, have become cult figures because of their investment philosophy, which pumps up the abilities of individual investors instead of the powerful investment establishment of brokers and firms.

By Stewart Deck

But would this online forum help me, a novice to both investing and online forums? I was determined to find out. So I pulled on a floppy Shakespearean hat to look like the Fool's founders, dialed up AOL and typed Motley in the "Go To" menu. Before I could say Stratford-upon-Avon, I was in.

After many hours of surfing through the Fool, I discovered it is a solid tool for a newcomer such as me. If you are looking for strictly expert advice, the Fool isn't for you. Instead, the Fool gives you a huge amount of information and leaves you to make your own decisions.

The two caveats: Not all companies are included on the Fool, and not all information is as current as it should be. The forum's founders choose companies to make up the Fool portfolio. Companies are picked based on the founders' belief that they are good growth opportunities. Regarding the timeliness of news, some News sections are updated more frequently than others.

Getting started

When you arrive at the Fool, you'll see an opening screen that's an eyeful. It includes a news feed to the left, a string of friendly icons neatly arranged to the right and a special report tucked down at the bottom of the screen. I felt like a kid with a roll of quarters in a video arcade. What should I play with first?

I was immediately drawn to the Fool's School "13 Steps to Investing Foolishly" — advice and the philosophy behind the "Foolish" investing approach as well as tips for getting started.

I intended to get to the research sections and forums quickly and find out the latest dirt on two high-tech companies I'd written about in the past, Adobe Systems, Inc. and Read-Rite Corp. But I decided to visit the Fool's School first.

The Fool's School is made up of many linked pages of plainly written — at times fun and unconventional — advice to help novices learn about investing in stocks, such as "You shouldn't invest money you don't have." After skimming through money management strategies, tax pointers and car buying advice, I used the simple navigation bar at the bottom of the screen to get back to the central Motley Fool home screen.

I moved on to the Stock Research section, which is brimming with data. Click on a company name and you can get a basic (perhaps flowery) overview of the company. Sometimes, these are written by the company itself.

Since I was in the research section, I clicked on the News icon to see what was there. Six hours earlier that day, Cabletron Systems, Inc. had announced it was buying Netlink, Inc., and I figured the Networking Financial News section might have the story. Alas, the latest financial and technical news in the section was three weeks old. News of the merger might have been somewhere in The Motley Fool, but it wasn't immediately clear how to find it.

Laura Boydston, a spokeswoman for the Fool, said this section isn't updated as often as the News section on the home page because readers tend to look to the home page first for breaking news.

More research

I found my way back to Stock Research and clicked on Company Research. Wow! Snazzy-looking graphics with the faded gray/green hue of a dollar bill flashed up. I found references to both Adobe and Read-Rite and connected to pages full of statistics and percentage rankings compiled by First Call, a publisher of investment research.

This information isn't set up in the same user-friendly, chatty manner as the central sections of The Motley Fool. Instead, this area is designed and operated by First Call. Once you start to make sense of the different ratio and recommendation codes and lingo though, these research pages can be another useful investing tool.

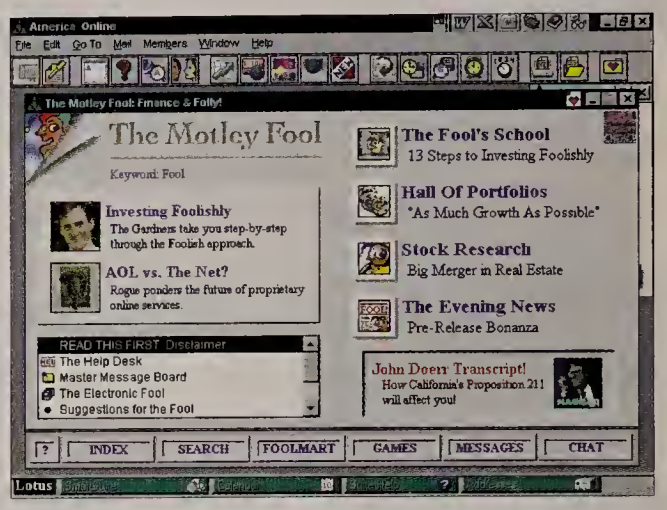
Back in the Fool-designed sections, you'll find more plainspoken analysis of companies held in The Motley Fool portfolio. Sadly for me, Adobe wasn't in the Fool portfolio.

But, shake my jingley hat, analysis on Read-Rite was there with a thorough explanation of how Read-Rite fits into the storage sector. I was troubled that a portion of the analysis appeared to have been written more than a year ago. It turns out Read-Rite was in one of the Fool's portfolios last year but fell out of favor and was dropped.

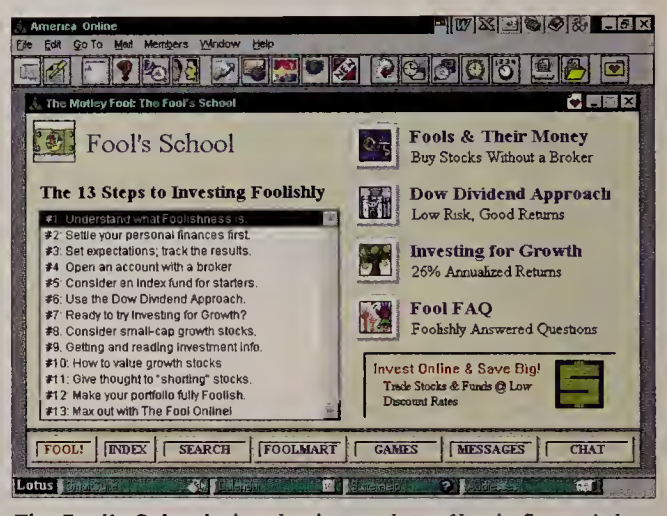
Helpful forums

I found some of the forums very useful, particularly the ones where people share specific experiences.

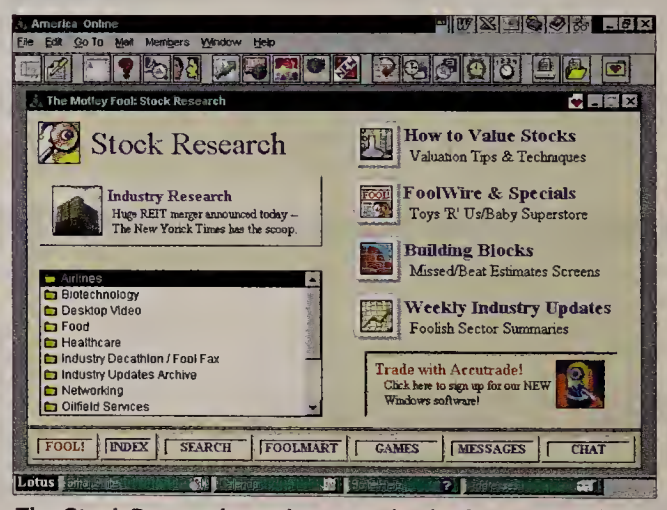
Other forums where people crow about their "great buys" were far less useful and grew tiresome quickly.



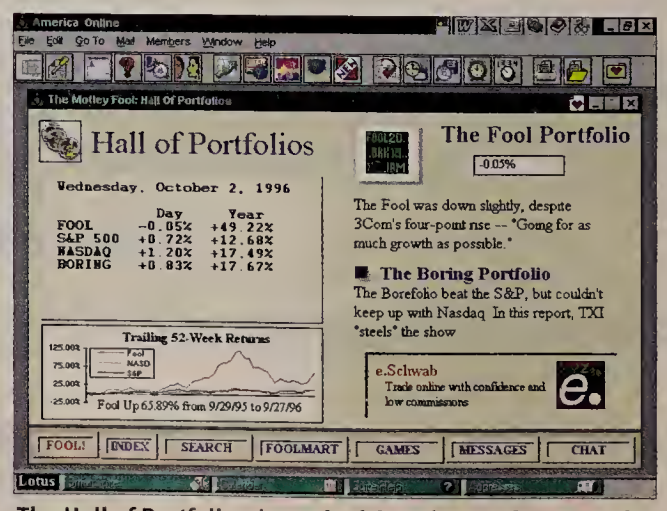
The Motley Fool's opening screen *is a cornucopia of investing information, including news feeds and analysis*



The Fool's School *gives beginners lots of basic financial advice and investor tips for getting started*



The Stock Research section *contains in-depth analysis of stocks and links to other resources*



The Hall of Portfolios *is a colorful section on the ups and downs of The Motley Fool's portfolio of companies*

The Week in Stocks

Gainers

PERCENT

Interleaf Inc.	30.0
Chips and Technologies (H)	26.7
Open Market Inc.	21.3
MathSoft(L)	19.7
Logic Works(L)	18.7
VLSI Technology	17.6
Micro Focus	17.3
Forte Software	14.9

DOLLAR

Gateway 2000 Inc.(H)	6.13
Intel Corp.(H)	5.75
Forte Software	5.63
US Robotics	4.88
Netscape Comm. Corp.	4.75
Open Market Inc.	4.00
Chips and Technologies (H)	4.00
Inacom Corp.(H)	3.56

Losers

PERCENT

Centura Software(L)	-28.6
NetFrame	-25.8
Streamlogic Corp.	-19.4
System Software Assoc.	-18.2
Borland Int'l Inc.(L)	-17.8
Bay Networks Inc.(L)	-16.0
Applix Inc.	-14.7
Xerox Corp.	-14.3

DOLLAR

Xerox Corp.	-8.00
Cabletron Systems	-7.63
Sun Microsystems Inc.(H)	-6.50
Applix Inc.	-5.38
Adaptec Inc.(H)	-5.38
3 COM Corp.(H)	-4.50
Security Dynamics Tech.	-4.00
Bay Networks Inc.(L)	-3.75

Industry Almanac

AT&T boosts Open Market

What a difference a deal with a telecommunications giant can make. Just ask **Open Market, Inc. (Nasdaq:OMKT)**.

After its initial public offering in May, Open Market's stock had settled in the $14 to $15 range. The company three weeks ago gave a presentation at the Montgomery Securities Growth Conference that rekindled interest in its stock.

According to one attendee, the Cambridge, Mass., company wowed conference-goers with the description of its technology for Internet commerce. The technology lets companies manage transactions securely from a central location.

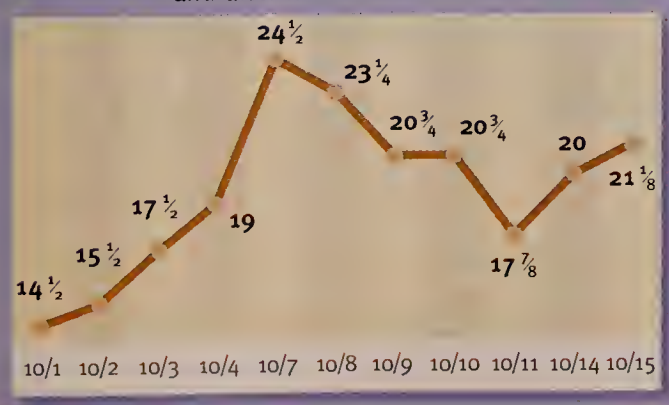
Days after this presentation, mighty **AT&T Corp. (NYSE:T)** announced an Internet service, Web Marketing Solution, that provides all the pieces for Internet presence and commerce for World Wide Web-based businesses.

AT&T will license the underlying Internet commerce technology for this service from Open Market. Although Open Market has signed similar agreements with MCI Communications Corp., the AT&T announcement "was a strong endorsement of the company and its technology," says David Readerman, an analyst at Montgomery Securities, Inc. in San Francisco. "With the depth of AT&T's billing [and] sales ... services, this partnership is quite significant to Open Market."

Open Market is well-positioned in the exploding area of Internet commerce, says Michael Parekh, an analyst at Goldman, Sachs & Co. in New York. "Internet providers wanting to add additional services are going to need software for building commerce applications" Parekh says. Open Market is especially well-suited for huge-volume applications. — *Stewart Deck*

Opening up

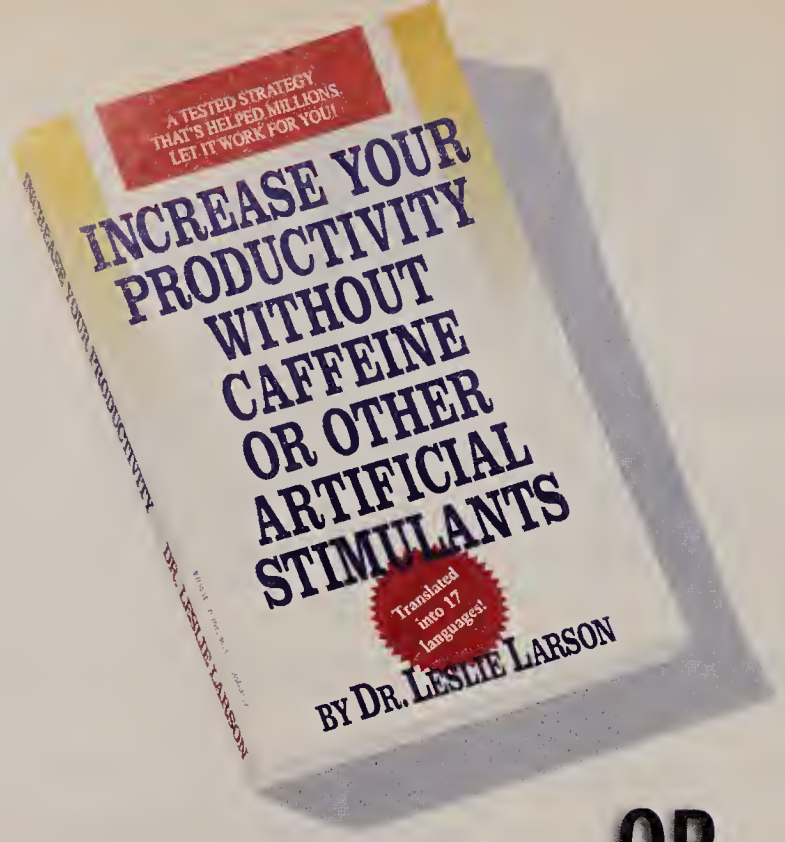
Open Market's stock price zoomed up just before and after its deal with AT&T



Exch	52-Week Range			Oct. 18 2 P.M.	Wk Net Change	Wk Pct Change
Communications and Network Services						**OFF 1.73%**
COMS	68.50	33.50	3 COM Corp. (H)	63.25	-4.50	-6.6
AIT	66.88	49.63	AMERITECH Corp.	57.00	1.38	2.5
T	68.88	37.50	AT & T	39.88	1.13	2.9
ASND	71.25	24.00	Ascend Communications	65.00	-0.88	-1.3
BNYN	13.63	4.50	Banyan Systems Inc.	5.25	-0.06	-1.2
BAY	50.00	19.50	Bay Networks Inc. (L)	19.75	-3.75	-16.0
BEL	80.38	43.50	Bell Atlantic Corp.	60.25	0.38	0.6
BLS	45.88	35.25	Bellsouth Corp.	40.00	2.25	6.0
BRKT	42.25	8.00	Brooktrout Technology (H)	35.50	-2.75	-7.2
CS	87.75	53.00	Cabletron Systems	62.00	-7.63	-11.0
CSCC	91.25	17.50	Cascade Communications	73.13	-1.13	-1.5
CGRM	24.38	12.25	Centigram Communications	14.63	0.13	0.9
CSCO	67.00	32.00	Cisco Systems Inc.	63.38	-1.88	-2.9
CLIX	9.25	4.50	Compression Labs Inc.	6.00	0.19	3.2
CMNT	10.50	4.00	Computer Network Tech.	6.00	0.38	6.7
XCOM	14.25	4.75	CrossComm	5.63	0.13	2.3
DIGI	45.88	15.31	DSC Communications	15.63	-1.25	-7.4
FORE	44.75	17.75	FORE Systems Inc.	39.25	2.50	6.8
GDC	21.88	9.13	General Datacomm Inds.	10.88	-0.13	-1.1
GSX	44.25	29.00	General Signal Networks	42.00	-0.25	-0.6
GTE	49.25	37.75	GTE Corp.	41.50	1.75	4.4
LU	48.75	29.75	Lucent Tech. (H)	47.38	-0.25	-0.5
MADGF	48.63	9.13	Madge Networks NV	10.00	-1.50	-13.0
MCIC	31.13	22.38	MCI Commmunications Corp.	24.44	-1.75	-6.7
MNPI	34.50	5.50	Microcom Inc.	9.00	0.00	0.0
NETM	34.00	6.63	NetManage Inc. (L)	7.13	-0.75	-9.5
NTRX	10.88	3.63	Netrix Corp.	7.13	-0.25	-3.4
NCDI	10.25	2.88	Network Computing Devices	6.63	0.13	1.9
NWK	36.88	11.13	Network Equipment Tech.	15.63	1.88	13.6
NETG	27.63	15.00	Network General	25.56	1.31	5.4
NN	37.25	13.25	Newbridge Networks Corp. (H)	33.88	-1.25	-3.6
NT	62.50	31.50	Northern Telecom Ltd. (H)	60.38	-1.25	-2.0
NOVL	19.13	10.00	Novell Inc.	10.25	-0.75	-6.8
NYN	59.25	42.00	Nynex Corp.	44.00	0.63	1.4
OCTL	31.75	12.63	Octel Communications Corp.	29.50	0.50	1.7
ODSI	37.50	13.25	Optical Data Systems Inc. (L)	14.00	-1.13	-7.4
PAC	35.25	25.88	Pacific Telesis	35.00	1.25	3.7
PCTL	44.72	25.63	Picturetel Corp.	33.88	-2.63	-7.2
PTON	9.25	2.38	Proteon Inc.	2.75	-0.06	-2.2
RACO	7.00	3.50	Racotek Inc.	5.44	-0.31	-5.4
RETX	10.88	1.81	Retix	6.88	-0.63	-8.3
SBC	60.25	46.00	SBC Communications	50.00	1.75	3.6
SFA	20.38	11.38	Scientific Atlanta Inc.	16.50	-1.75	-9.6
SHVA	87.25	25.13	Shiva Corp.	46.00	0.00	0.0
FON	45.50	29.25	Sprint Corp.	38.75	-0.88	-2.2
SMSC	23.50	10.25	Standard Microsystems Corp.	13.00	-2.13	-14.0
TBIT	13.88	2.38	Telebit Corp.	13.25	0.06	0.5
USRX	105.50	32.75	US Robotics	74.50	4.88	7.0
USW	48.38	27.25	US West Inc.	31.00	-0.88	-2.7
XIRC	21.13	8.88	Xircom (H)	20.38	-0.25	-1.2
XYLN	76.00	34.00	Xylan Corp.	48.25	-0.25	-0.5
PCs and Workstations						**UP 0.89%**
AALR	10.38	5.88	Advanced Logic Research	8.88	0.63	7.6
AAPL	42.50	16.00	Apple Computer Inc.	26.50	2.38	9.8
ASTA	10.25	4.00	AST Research Inc.	4.75	-0.25	-5.0
CPQ	75.38	35.88	Compaq Computer Corp. (H)	72.38	2.38	3.4
DELL	88.75	23.00	Dell Computer Corp. (H)	83.50	3.00	3.7
GATE	57.63	18.00	Gateway 2000 Inc. (H)	54.88	6.13	12.6
HWP	57.75	36.88	Hewlett Packard Co.	47.50	1.63	3.5
MUEI	24.00	8.75	Micron International Inc.	20.25	-1.75	-8.0
NIPNY	70.00	49.88	NEC America	57.00	0.13	0.2
SGI	38.75	20.00	Silicon Graphics	20.50	-1.88	-8.4
SUNW	70.25	28.88	Sun Microsystems Inc. (H)	60.38	-6.50	-9.7
Large Systems						**OFF 0.25%**
AMH	13.50	6.75	Amdahl Corp.	9.94	-0.06	-0.6
DGN	19.13	9.00	Data General Corp.	15.25	0.75	5.2
DEC	76.50	30.50	Digital Equipment Corp.	34.25	-1.13	-3.2
IBM	131.25	83.13	IBM (H)	127.25	-1.88	-1.5
MDCD	20.25	6.50	Meridian Data Inc.	7.38	0.00	0.0
NETF	6.88	2.63	NetFrame	2.88	-1.00	-25.8
SQNT	19.13	10.13	Sequent Computer Sys.	14.00	1.13	8.7
SEQS	7.38	1.88	Sequoia Systems Inc.	2.63	0.06	2.4
SRA	36.13	16.63	Stratus Computer Inc.	24.63	1.75	7.7
TDM	15.25	8.38	Tandem Computers Inc.	12.00	0.50	4.3
UIS	9.13	5.38	Unisys Corp.	7.25	0.00	0.0
Software						**UP 0.04%**
ADBE	74.25	28.50	Adobe Systems Inc.	36.63	-0.13	-0.3
AMSWA	8.75	3.63	American Software Inc.	6.06	-0.19	-3.0
APLX	42.50	11.63	Applix Inc.	31.13	-5.38	-14.7
ARSW	82.75	28.75	Arbor Software	36.50	0.50	1.4
ADSK	44.25	18.50	Autodesk Inc.	23.00	0.25	1.1
BGSS	50.00	29.75	BGS Systems Inc.	46.00	2.50	5.7
BMCS	86.75	32.50	BMC Software Inc.	81.75	0.00	0.0
BOOL	26.75	19.38	Boole and Babbage	25.50	-0.50	-1.9
BORL	21.25	5.19	Borland Int'l Inc. (L)	5.19	-1.13	-17.8
BOBJY	55.50	11.75	Business Objects	17.13	-0.38	-2.1
CAYN	11.88	4.00	Cayenne Software Inc.	5.06	0.56	12.5
CNTR	8.38	2.94	Centura Software (L)	3.13	-1.25	-28.6
CYE	30.63	14.13	Cheyenne Software Inc. (H)	30.13	-0.25	-0.8
COGNF	34.13	10.50	Cognos Inc.	31.75	-0.13	-0.4
CA	66.75	27.63	Computer Associates (H)	60.38	-2.63	-4.2
CVN	15.50	5.75	Computervision Corp.	9.63	-0.38	-3.8
CPWR	48.25	15.50	Compuware Corp. (H)	47.00	0.75	1.6
CSRE	32.00	10.75	Comshare Inc.	14.75	-1.63	-9.9
COSFF	19.13	8.00	Corel Corp.	8.44	-0.44	-4.9
DWTI	13.00	3.25	Dataware Technologies Inc.	4.00	0.00	0.0
FILE	67.00	20.00	Filenet Corp.	28.75	-0.25	-0.9
FRTE	81.75	24.75	Forte Software	43.38	5.63	14.9
FTPS	40.63	5.88	FTP Software Inc.	6.50	-0.88	-11.9
HUMCF	60.50	23.00	Hummingbird Comm. Ltd.	31.38	-0.63	-2.0
HYSW	25.63	9.75	Hyperion Software Corp.	16.75	-0.25	-1.5
IRIC	16.25	10.00	Information Resources	11.75	-0.50	-4.1
IFMX	36.75	16.88	Informix Corp.	25.13	-1.75	-6.5
INGR	20.13	8.63	Intergraph Corp.	10.88	0.00	0.0
LEAF	12.63	2.00	Interleaf Inc.	3.25	0.75	30.0
ISLI	22.00	7.50	Intersolv Inc.	9.25	0.63	7.2
INTU	89.25	27.00	Intuit Inc.	27.00	-3.00	-10.0
LGWX	22.25	5.38	Logic Works (L)	6.75	1.06	18.7
MAPS	22.75	7.50	MapInfo Corp.	12.00	0.75	6.7
MATH	9.25	3.25	MathSoft (L)	4.56	0.75	19.7
MCAF	52.88	14.00	McAfee Associates	50.75	0.42	0.8
MENT	22.88	8.88	Mentor Graphics	9.13	-0.19	-2.0
MIFGY	21.25	8.25	Micro Focus	16.13	2.38	17.3
MGXI	18.63	5.63	Micrografx Inc.	6.19	0.38	6.5
MSFT	139.13	79.88	Microsoft Corp. (H)	134.75	-1.38	-1.0
ORCL	46.38	26.13	Oracle Corp.	44.25	-1.00	-2.2
PMTC	54.50	25.88	Parametric Technology	51.50	-0.75	-1.4
PARQ	14.63	2.25	ParcPlace Systems Inc.	2.88	0.25	9.5
PSFT	89.25	34.25	Peoplesoft	86.00	-2.25	-2.5
PTEC	20.38	10.63	Phoenix Technologies	18.63	0.88	4.9
PSQL	12.75	3.13	Platinum Software	12.75	1.50	13.3
PLAT	19.13	9.25	Platinum Technology	14.75	0.88	6.3
PRGS	38.00	12.13	Progress Software Corp.	16.38	1.50	10.1
RNBO	25.50	14.63	Rainbow Technologies Inc.	18.25	-1.13	-5.8
RED8	61.00	18.25	Red Brick Systems Inc.	24.50	0.50	2.1
SAPE	58.25	29.25	Sapient Corp.	47.25	-1.50	-3.1
SCOC	9.13	5.50	SCO Inc.	7.13	-0.13	-1.7
SDTI	109.00	26.75	Security Dynamics Tech.	73.50	-4.00	-5.2
SKEY	45.63	13.38	Softkey International Inc.	20.13	0.25	1.3
SPCO	4.25	1.19	Software Publishing Corp.	1.25	0.00	0.0
SQAX	39.75	16.00	SQA Inc.	23.50	0.25	1.1
SOTA	19.75	9.19	State of the Art	11.88	-1.00	-7.8
SSW	81.38	28.25	Sterling Software Inc.	30.13	-0.38	-1.2
SDRC	37.38	15.00	Struct. Dynamics Research	19.88	-1.75	-8.1
SYBS	39.75	13.50	Sybase Inc.	19.25	1.38	7.7
SYMC	30.38	8.75	Symantec Corp.	10.88	-0.44	-3.9
SNPS	50.50	27.50	SynOpsys	44.50	-1.63	-3.5
SSAX	28.38	8.25	System Software Assoc.	10.13	-2.25	-18.2
SYSF	36.50	4.38	Systemsoft Corp.	28.25	-2.13	-7.0
TRUV	9.63	3.44	Truevision Corp.	4.00	0.13	3.2
VIEW	17.50	8.63	ViewLogic Systems	8.75	-0.38	-4.1
VMRK	12.63	5.50	VMark Software Inc.	6.31	0.31	5.2
WALK	15.38	6.25	Walker Interactive Systems (H)	14.25	0.00	0.0
WALL	27.50	12.25	Wall Data Inc.	14.00	0.38	2.8
WANG	26.13	15.38	Wang Laboratories Inc.	22.00	-0.25	-1.1
Internet						**UP 2.68%**
AOL	71.00	22.38	America On-Line (L)	24.75	0.50	2.1
BBN	48.75	15.63	BBN Corp.	19.00	1.25	7.0
CSRV	35.50	10.75	Compuserve Corp.	10.88	-1.13	-9.4
EDFY	55.75	15.50	Edify Corp. (L)	16.50	-0.25	-1.5
LCOS	29.25	5.75	Lycos Inc.	12.25	0.63	5.4
NETC	91.50	14.25	Netcom On-Line (L)	15.50	0.50	3.3
NSCP	87.00	32.13	Netscape Comm. Corp.	45.50	4.75	11.7
OMKT	42.25	11.50	Open Market Inc.	22.75	4.00	21.3
PSIX	29.00	6.75	PSINet	10.75	0.75	7.5
QDEK	39.50	5.63	Quarterdeck Corp.	6.13	-0.13	-2.0
RAPT	39.25	12.75	Raptor Systems	22.13	-0.13	-0.6
SCUR	64.50	9.00	Secure Computing Corp. (L)	9.00	-1.50	-14.3
SPYG	61.00	12.00	Spyglass Inc.	17.50	0.38	2.2
YHOO	43.00	15.50	Yahoo! Inc.	21.88	1.00	4.8
Semiconductors						**UP 3.30%**
AMD	28.50	10.25	Advanced Micro Devices	17.13	1.00	6.2
ADI	30.13	17.00	Analog Devices Inc.	27.63	-0.50	-1.8
CHPS	20.63	7.88	Chips and Technologies (H)	19.00	4.00	26.7
CRUS	50.13	12.63	Cirrus Logic	20.63	-2.50	-10.8
CY	19.13	9.13	Cypress Semiconductor Corp.	11.50	-0.88	-7.1
CYRX	43.63	11.50	Cyrix	19.63	2.13	12.1
INTC	114.13	49.81	Intel Corp. (H)	109.88	5.75	5.5
LSI	56.38	17.00	LSI Logic Corp.	26.13	0.13	0.5
LSCC	40.63	19.75	Lattice Semiconductor	33.56	1.81	5.7
MCRL	26.00	12.00	Micrel Semiconductor Inc.	21.25	0.38	1.8
MU	77.38	16.63	Micron Technology	32.13	0.25	0.8
MOT	68.88	44.75	Motorola Inc.	48.63	0.13	0.3
NSM	27.88	13.00	National Semiconductor	19.25	-0.88	-4.3
TXN	77.00	40.50	Texas Instruments	53.50	-2.25	-4.0
VLSI	30.00	10.38	VLSI Technology	18.00	2.69	17.6
XLNX	49.00	23.25	Xilinx	35.00	-0.88	-2.4
ZLG	40.38	14.88	Zilog Inc.	21.75	1.88	9.4
Peripherals and Subsystems						**OFF 2.85%**
APCC	16.25	7.88	American Power Conversion (H)	16.25	1.13	7.4
ADPT	65.75	35.00	Adaptec Inc. (H)	58.75	-5.38	-8.4
CBEX	10.63	3.00	Cambex Corp.	3.50	0.31	9.8
CREAF	12.88	3.50	Creative Technology Ltd.	5.56	-0.25	-4.3
RACE	12.75	3.63	Data Race Inc. (H)	10.88	-1.25	-10.3
DTM	8.88	4.13	Dataram Corp.	7.13	-0.88	-10.9
EMC	26.50	13.25	EMC Corp. (H)	26.00	1.50	6.1
EMLX	21.38	6.38	Emulex Corp.	17.25	0.25	1.5
ESCC	29.00	16.50	Evans and Sutherland	21.25	-2.13	-9.1
EXBT	22.75	11.38	Exabyte	13.69	0.56	4.3
IISLF	4.13	1.44	Intelligent Info. Systems (L)	1.63	0.00	0.0
IOMG	55.13	3.25	Iomega Corp.	24.25	1.31	5.7
IPLS	8.25	1.88	IPL Systems Inc.	2.00	-0.25	-11.1
KMAG	37.00	17.63	Komag Inc.	28.25	0.13	0.4
MTSI	22.25	11.25	Micro Touch Systems Inc.	17.25	-0.75	-4.2
PEAK	34.75	11.50	Peak Technology Group (L)	11.50	-0.50	-4.2
PNCL	19.75	4.88	Pinnacle Micro Inc.	8.00	-0.50	-5.9
AQM	6.75	3.25	QMS Inc.	5.50	-0.38	-6.4
QNTM	26.13	10.88	Quantum Corp.	20.25	0.31	1.6
RDUS	5.00	0.94	Radius Inc.	1.56	0.06	4.2
SEG	69.00	36.13	Seagate Technology (H)	65.88	-1.13	-1.7
STK	44.13	22.00	Storage Technology	41.38	-0.25	-0.6
STLC	8.75	1.25	Streamlogic Corp.	1.56	-0.38	-19.4
TEK	61.88	29.75	Tektronix Inc.	41.75	-0.50	-1.2
WDC	46.75	14.38	Western Digital Corp. (H)	44.50	-1.50	-3.3
XRX	58.25	39.88	Xerox Corp.	47.88	-8.00	-14.3
Services						**UP 1.63%**
AMSY	33.38	16.38	American Mgmt. Systems	31.75	3.38	11.9
ANLY	25.75	13.63	Analysts Int'l (H)	24.75	1.25	5.3
AUD	45.75	34.88	Auto Data Processing	42.13	-0.75	-1.7
BDMI	61.50	24.00	BDM International Inc.	53.00	-1.88	-3.4
CATP	37.25	13.88	Cambridge Tech. Partners	34.25	-0.25	-0.7
CEN	54.88	36.63	Ceridian Corp.	52.25	-0.63	-1.2
CDO	33.00	19.88	Comdisco Inc.	31.13	-0.50	-1.6
CHRZ	54.00	14.13	Computer Horizons	27.50	2.56	10.3
CSC	82.75	64.13	Computer Sciences (H)	80.13	-1.75	-2.1
TSK	35.00	14.88	Computer Task Group (H)	35.00	3.00	9.4
CPU	61.75	12.88	CompUSA Inc. (H)	59.88	2.00	3.5
CDAT	27.63	10.88	Control Data Systems Inc. (H)	25.88	-0.38	-1.4
EGGS	13.88	5.00	Egghead Discount Software	6.25	0.13	2.0
EDS	63.38	45.75	Electronic Data Systems Corp. (H)	61.63	0.63	1.0
INAC	37.63	9.13	Inacom Corp. (H)	37.63	3.56	10.5
INEL	11.50	3.50	Intelligent Electronics	10.00	1.00	11.1
KEA	48.25	18.25	Keane Inc.	46.50	-0.50	-1.1
MICA	19.25	7.25	Microage Inc.	18.13	0.00	0.0
PAYX	63.63	26.63	Paychex (H)	60.75	0.00	0.0
PMS	55.50	33.13	Policy Management Sys.	35.88	1.38	4.0
REY	28.25	17.63	Reynolds and Reynolds	26.13	-0.88	-3.2
SCBI	30.50	14.44	SCB Computer Tech. Inc.	20.00	0.00	0.0
SEIC	26.38	17.75	SEI Corp.	20.88	-0.06	-0.3
SMED	72.13	37.38	Shared Medical Systems	55.50	-0.13	-0.2
SSPE	30.50	17.00	Software Spectrum Inc.	26.00	-1.00	-3.7
VST	29.75	9.00	VanStar Corp. (H)	27.63	-0.75	-2.6
SNDT	47.50	25.25	Sungard Data Systems (H)	44.75	-0.75	-1.6

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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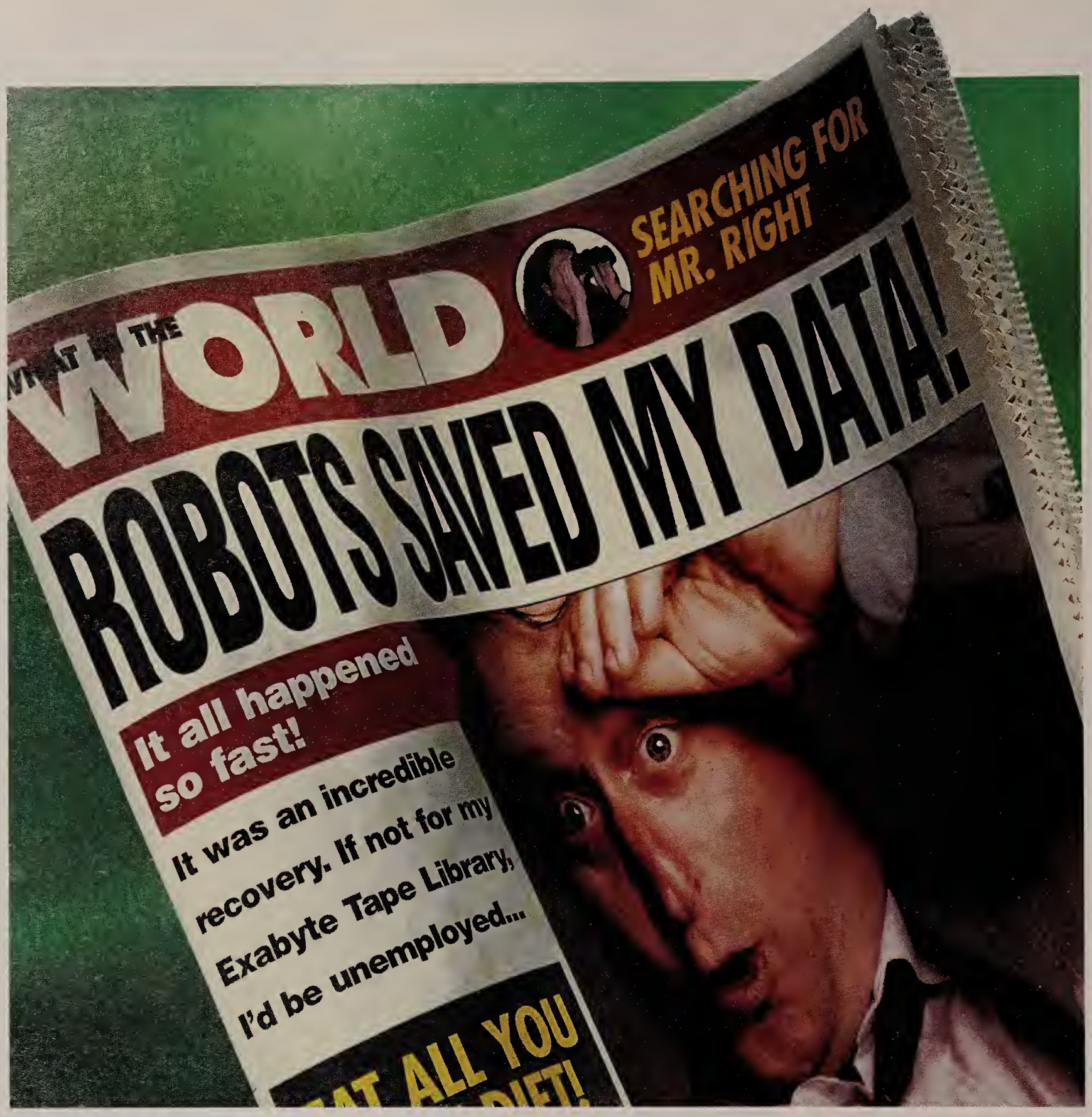
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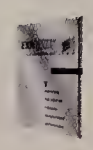
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Hey! Don't call it a browser

Marc Andreessen's denim shirt and tan pants are almost as identifiable as the big "N" that flashes on Netscape Communications Corp.'s Web browser. Oops! There's that B-word. Andreessen jokes with co-workers that he will fine anyone who calls Navigator a "browser" instead of a "universal client." But he is only half-kidding. The most valuable thing about the Internet today is using it to connect intranets and internal systems to external customers and partners. That is an extranet, and that is what will let Netscape stomp on Lotus Development Corp.'s Notes and Microsoft Corp.'s Exchange, he says. At last week's Netscape Internet Developers' Conference in New York, Andreessen talked with senior editor Kim S. Nash about Netscape's future, what chief information officers want and whether Microsoft can give it to them.



STEVEN BORNS

Q: A big part of the problem with groupware isn't technical, but cultural. Getting users to change the way they work. How would Netscape deal with that?

A: People don't necessarily want to collaborate. But the CIO knows that internal systems need to be linked to customers. The trilogy of Internet, intranet and extranet is changing the way people think. It's technology and the winds of business coming together at the right time. Lotus tried to get people to understand this. [Now] we have a way to get across the message. If businesses don't do this, they will be at a disadvantage.

Q: Netscape and Microsoft are trying to change the rhetoric lately, saying that the so-called browser war isn't important and applications are.

A: Despite Microsoft's [fear, uncertainty and doubt], the fundamental changes are in place to move to intranets as business systems. Microsoft needs to keep Windows upgrades going, so that's why they act the way they do. I still think the industry is heading toward a model where the [operating system] is just a plug-in, basically.

Q: Talk about the personal agent technology you are adding. It isn't a new idea.

A: Users will be able to set up agents to go get information for them on a regular basis. It's not a new idea, but the Internet makes it a good idea. You have agents send you E-mail with updates to data you care about. I see a future when you may just live in your in-box. Entire applications could be E-mail-based, and you wouldn't have to go through the drudgery of opening one application, closing another, opening this or that like you work now.

Q: Are you expecting customers with a dozen different E-mail systems to rip them all out and use Netscape's new E-mail or to set up Netscape's E-mail to translate and ride on top?

A: They're already going to rip out all their different systems. They already know E-mail has to be client/server. Now they know it has to talk to customers [outside the company].

Netscape steps up to bat

CONTINUED FROM PAGE 1

95 and Windows NT interfaces, is due within three months.

"Will one quarter make a difference? It could with how fast you have to make decisions now when you're talking about Web technology," said Manuel Glynias, president of NetGenics, Inc., a start-up in Cleveland that makes Web-based applications for drug companies.

The Collabra question

Netscape's big push next year will be Web-enabled E-mail and groupware. The company has unveiled Communicator and SuiteSpot 3.0; both products answer the question of just what Netscape did with the Collabra Software, Inc. groupware it acquired last year for $108 million.

Communicator is a set of Web clients designed to let users share work, conduct virtual meetings and send "rich" E-mail. Messages could, for example, contain Hypertext Markup Language hot links and documents, as well as documents from common PC applications such as Microsoft Excel.

SuiteSpot 3.0 is an upgrade to Netscape's server bundle.

Netscape promised to "embrace and integrate" ActiveX and other competing technologies from Microsoft, which surprised some observers.

For example, Navigator 4.0 will be able to run some ActiveX plug-in modules. And users will be able to launch Microsoft's Word and Excel and other applications from inside Navigator.

As recently as August, Netscape officials eschewed "CaptiveX" as a proprietary technology that didn't work on platforms such as Unix and Macintosh.

Users' influence

But pressure from users helped to change minds at Netscape, said Koen Swings, a service manager at Origin IT Systems Management, a consulting firm in Brussels.

Microsoft products are part of the computing fabric at many sites, and intranet applications must be able to work with them, Swings said.

Netscape hopes the addition of full E-mail and groupware to the core browser will be a hit with users who are struggling to manage numerous separate systems (see Q&A, above).

Barbara Bauer, senior director of customer systems development at US West Communications, Inc., gave the idea a thumbs-up. Early next year, the Denver-based firm plans to replace the roughly 15 different E-mail packages used by 50,000 employees with Netscape's Messenger.

You can hear more about Bauer's plans for a 50,000-user intranet on Computerworld's *audio report at www.computerworld.com.*

Beyond browsing

These client pieces of Communicator won't work without corresponding SuiteSpot 3.0 server packages

PRODUCT	PURPOSE
Navigator 4.0	Web browser
Messenger	E-mail
Collabra	Groupware
Conference	Audio and data conferencing
Calendar	Scheduling
Composer	HTML editor

All products are due to enter beta in 30 to 60 days; final release is due Q1 1997

Facing the critics

The bloom was off the rose last week at Netscape's second-ever user show. No one berated the company, at least not publicly, but some attendees did ask executives sticky questions.

To their credit, Netscapians didn't dodge the questions, even when it would have been convenient. Take, for example, these responses from Netscape officials:

On Netscape's new per-user price model on some server software: "Even after having introduced a client license on four servers ... [our products] are still 30% cheaper than anything out there. We've found very large sites [can run] our mail server with 7,500 users. With Exchange, studies say, it tops out at the 200 range. It costs us more money to support [large sites]. Users were willing to pay more." — *Mike Homer, director of marketing*

On Navigator's Macintosh memory-eating: "It's 16M bytes on the Mac. It looks like we're on target for not having to increase the requirements. We're acutely aware. We're continuing to try to drive this down."

— *Daniel Klaussen, Communicator product manager*

On Java becoming fractured, like Unix: Netscape's extensions to Java are done "in a way we think is consistent to the core. Any Java runtime that complies with Javasoft's runtime will be able to run [the extensions]."

— *Mike Homer*

On some versions of Navigator lagging behind others, such as a kit for Internet service providers falling behind the end-user edition: "We're going to be a lot better on that front. We're working really hard to have them ship simultaneously."

— *Bob Lisbonne, vice president of client marketing*

— Kim S. Nash

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David Coursey

You can help pick next Windows interface

How many user interfaces should an operating system have? I ask in hopes of heading off a friendly showdown between two friends who happen to be senior executives at Microsoft. One is Brad Silverberg, the operating systems boss. The other is Richard Fade, who runs applications. Each has a user interface (UI) for Windows 95.

At present, Windows 95 has the standard UI with which you're probably familiar. For those who can never get too much of an old thing, hidden inside Windows 95 is a Windows 3.x Program Manager-style UI. Or you might choose Windows Explorer (not to be confused with Internet Explorer; more in a moment on that) to open programs and documents.

So while there are three user interfaces built in to Windows 95, one is clearly most powerful. It's the default, the "standard" UI, most easily identified by the Start button. This UI hasn't exactly set the world afire, although it's quite nice once you get the hang of it.

But there is an interface that has set the world afire: the Internet Explorer browser UI, which Microsoft has promised will be in Windows 95. The demonstrations of this UI by Bill Gates and other Microsoft executives have been of a Windows 95 desktop converted into a Hypertext Markup Language page.

From this interface, users can navigate their PC, LAN or intranet. They can also seamlessly blast onto the worldwide Internet without really having to know where they are. This project, which is Silverberg's domain, has been dubbed "Nashville" but is more properly known as Internet Explorer 4.0. Yes, what was once your browser is now your entire desktop shell.

But wait. Microsoft has another important new interface, this one from Fade's applications developers. Microsoft Outlook, the new desktop information manager, is in limited beta testing and will be released as part of Office 97. Outlook is a mail client and personal information manager. It will replace Schedule+ and the Exchange client for most users.



Outlook fixes many of the problems of its predecessors and is pleasant to use. Besides electronic mail, address books and calendars, Outlook gives users access to all of their applications and files. It also includes a Journal feature that gives a time-line view of the files, E-mail messages and other tasks the user has been working on. This solves a familiar problem: "I know I worked on that file yesterday afternoon, but where is it? And what is it called?"

Confused yet? You ought to be. But don't worry. Be happy.

Microsoft isn't taking anything away. It's just extending the available options. The World Wide Web browser view doesn't replace the familiar Windows 95 user interface, it extends it. Both will be easily available to every user. Outlook will suffice (and then some) for people who live in Microsoft applications, E-mail or on the 'net all day.

There are several unresolved issues, such as which interface will become the default. I'd leave the current UI as the standard and let users and administrators configure their systems as they will, even if it means one operating system with five interfaces. Customers can decide what's best for them. And Richard and Brad can avoid a Microsoft version of the gunfight at OK Corral.

Coursey, an analyst and consultant, is editor of "coursey.com," an online newsletter available at www.coursey.com. Which interface do you think should be standard? Send Coursey E-mail at david@coursey.com, and he'll pass on your comments to Microsoft.

Charles Babcock

Avoid the server feeding frenzy

Many IS organizations are thinking about upgrading their server systems. In doing so, they face a bewildering array of choices — some of which will prove incorrect three years hence. Trainloads of newly minted Pentium Pro servers are rolling down the tracks, bringing eight-way machines with itsy-bitsy Intel price tags. Should these replace some of your servers?

Microsoft's Windows NT hasn't scaled well beyond four processors to date. But then, few PC servers have been built to handle the I/O of eight or 16 Pentium Pro CPUs; maybe the next crop will be more scalable.

The advent of cheap Windows NT systems will prompt established hardware vendors such as Sun, Hewlett-Packard, Silicon Graphics and IBM to pump up their server lines. But if NT servers continue to gain strength, these vendors will have to "starve out" their unprofitable processors by declining to invest in them, says George Weiss, a distributed computing analyst at Gartner Group in Stamford, Conn.

Information systems managers who are thinking of investing heavily in their Unix or proprietary servers should think again. There are too many Unix servers on the market. Consolidation *will* occur. Do you know which servers will survive? Your friendly salesman may offer you the deal of a lifetime on familiar processors. But if a model is discontinued, you will be proceeding down a dead-end road.

On the other hand, replacing your Unix database server with an NT server is a risky proposition right now. Why not see how well a few symmetrical multiprocessing NT machines scale before taking that step?

The fact is, few people have any idea how the NT/Unix skirmish will shake out. There are pressures building to bring in servers with the greatest affinity to the desktop, to simplify existing complexities. I think NT's Back Office was designed to do that. So it wouldn't surprise me to see NT push Unix away from the desktop in many shops.

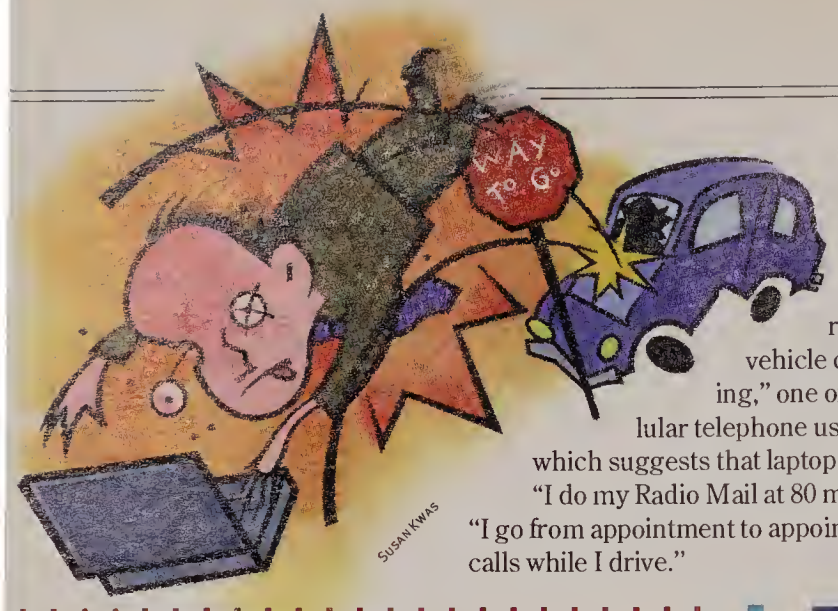


To further complicate the picture, some established high-end hardware vendors, such as Digital, Data General and Tandem Computers, will try to walk on both sides of the street by catching the NT commodity wave. Tandem officials recently told me the company will continue to offer its high-end NonStop line but will also sell technologies for Windows NT. They acknowledge that Intel has done much to close the gap between RISC and CISC processors.

IS managers also will face the question of how they plan to manage new systems with a limited staff. After all, today's heterogeneity is one of the sources of high support costs. What skills have you invested in so far? Which ones represent the best investment for the future? A set of interrelated questions surrounds your next server investment, and unless you can tell the winners from the losers, you will put your budget at risk.

It doesn't sound brave, but the wisest strategy is to stall and eke out the most from what you've got until the picture clears up, Gartner analysts say. Beefing up your existing line or installing compatible hardware to build a data warehouse, establishing a Web server or just taking the load off existing servers is the soundest way to go until the dust settles.

Babcock is *Computerworld*'s technical editor. His Internet address is charles_babcock@cw.com.

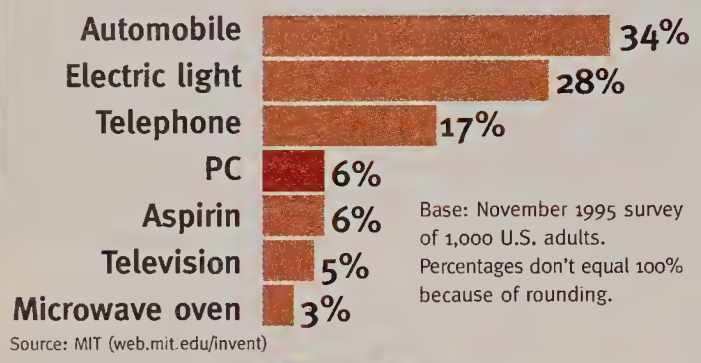


Commuters' computers

The California Highway Patrol is spotting more motorists using laptop PCs and cellular modems as they zip down the highways of Silicon Valley, *The New York Times* reported. "There's nothing specifically in the vehicle code that says you can't compute while driving," one officer said. But a recent study found that cellular telephone use raises the chance of an accident by 34%, which suggests that laptop users should log off while at the wheel. "I do my Radio Mail at 80 miles an hour," said analyst Andrew Seybold. "I go from appointment to appointment, catching up on E-mail and phone calls while I drive."

Invention index

The PC ties with aspirin as the fourth "most important invention," according to a national survey



Base: November 1995 survey of 1,000 U.S. adults. Percentages don't equal 100% because of rounding.

Source: MIT (web.mit.edu/invent)

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Patent watch

These recently issued U.S. patents were gleaned from MicroPatent's Patent Server at www.micropat.com. (Patent number, inventor/assignee, date issued)

A virtual reality system that uses medical scans to show a patient a three-dimensional view of his disease, such as cancer. The patient uses a data glove or other tool to virtually attack and eradicate the disease. This reduces hopelessness, triggers the healing powers of the mind and helps the recovery process. (5,546,943, Duncan K. Gould, Aug. 12)



A method for correcting the image distortion — called keystoning — caused when overhead projectors show a transparency on a screen. The invention uses software to create an intentionally distorted transparency that cancels out the keystoning. (5,548,357, Xerox, Aug. 20)

A self-cleaning touch screen for computer kiosks. The kiosk has a roll of transparent film that covers the screen. Timers, optical sensors and motors are used to advance the transparent film onto a take-up roller whenever the film becomes "greasy and grimy." (5,550,564, IBM, Aug. 27)

A workflow and document management system for processing insurance claims. (5,557,515, Hartford Fire Insurance, Sept. 17)

Quotables

Danny Hillis, brilliant computer inventor, on Internet telephony:

"I'm amazed that now that we have 300 MIPS on the desk, all we can think of doing with it is making it emulate the telephone."

Scott Smith, analyst at Jupiter Communications, on the tendency of the Web to get congested when a popular site debuts:

"The Web is like a ship. Everybody runs over to one side, and it tilts in that direction."

Inside Lines

Say it ain't so

We were shocked by the horrid confessions wrung out of poor Marc Andreessen, boyish co-founder of Netscape, on the *Charlie Rose* talk show last week. First, he admitted he hasn't been able to get his home PC to work — the system crashes regularly — and the printer and CD-ROM drive don't work. Second, he said he can't program his VCR. He seemed to accept with aplomb the notion that Microsoft is trying to put Netscape out of business. "Microsoft's ambition is to drive everybody out of business. When you're in the computer industry, you just assume that," he said. (For more from Andreessen, see pages 1 and 135.)

Forest gunk

Internet video vendor Xing Technology is teaming with Rockwell Avionics' Communications Division and other partners to create tools for sending video via satellite over the Internet. "Never before has an average, everyday person been able to stand [for instance] in the middle of a desolate forest and interview someone *while* sending that video over the Internet," a publicist said. This raises two questions: 1. Why would a person want to do that? And 2. How can you have a "desolate forest"? Isn't that an oxymoron such as "jumbo shrimp" or "government service"?

Groupware grenades

Lotus and Microsoft are lobbing market research studies at each other like hand grenades. At issue: the ongoing battle between Notes and Microsoft Exchange messaging and groupware packages. Lotus has published results on its Web pages in recent months from reports that show Notes costs less and is more effective than Exchange. But just last week, Microsoft fired back with a report from Zona Research that claims that Notes is 47% more expensive than Exchange.

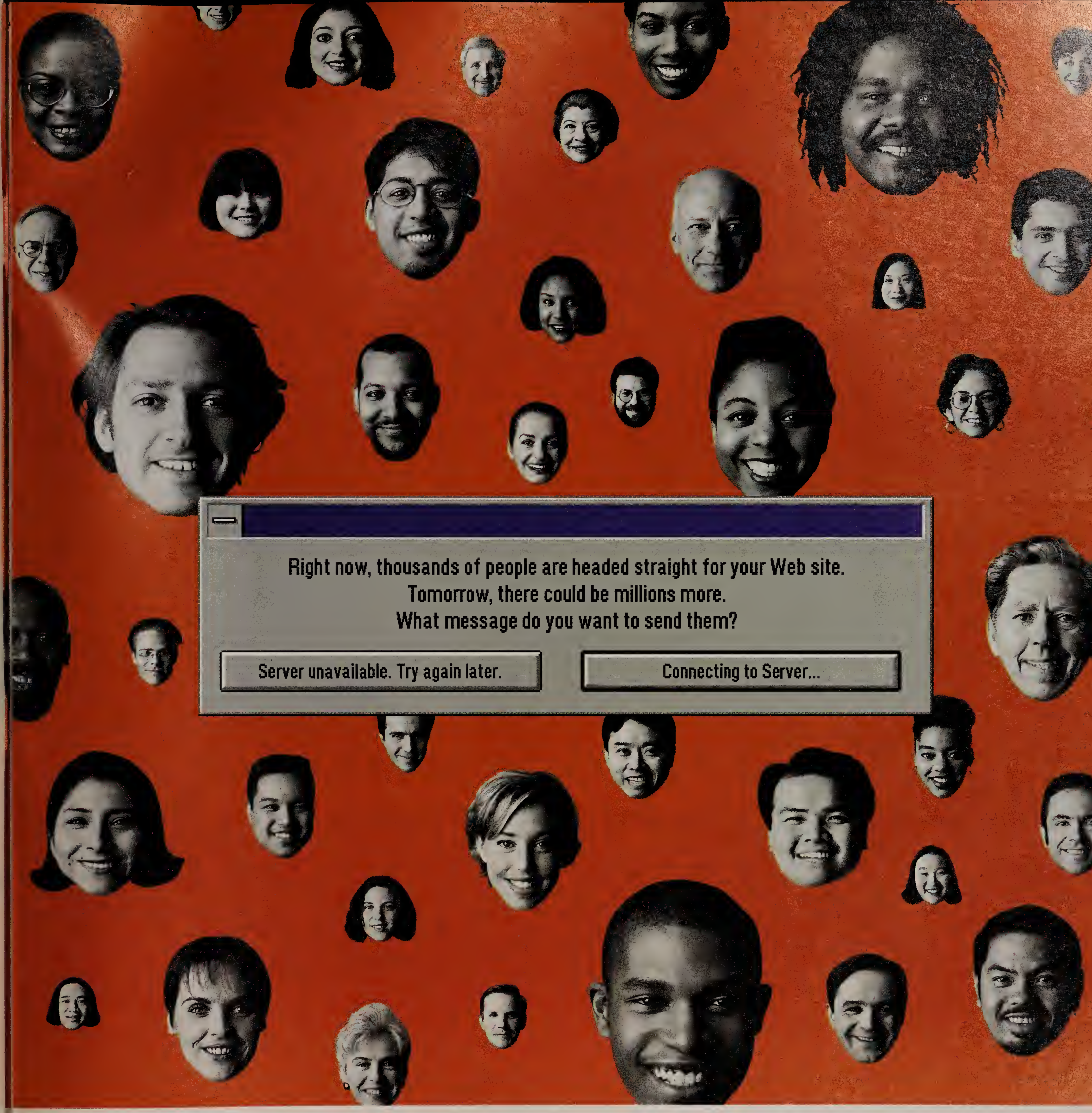
Count turns against Palmer

As Digital gets ready this week to announce another money-losing quarter, the pressure could be mounting on CEO Robert Palmer, according to some analysts tracking the company. After more than six consecutive profitable quarters, he has slipped on two losing quarters in a row. Analysts speculate that if the losing streak reaches three, Palmer could find himself in trouble. "He's not quite toast as yet, but he is getting pretty tanned," said Terry Shannon, editor of the "Shannon Knows DEC" newsletter.

On-time 'net delivery?

To improve response time across the Internet and busy intranets, NetManage in Cupertino, Calif., this week will announce plans to enhance its client software with a protocol that sends bandwidth requests to routers. NetManage will license from Intel the PC Reservation Protocol that lets network applications specify a required level of service. Gaining priority over other network traffic can assure adequate performance for time-sensitive functions, such as smoothing delivery of video streams.

The next time you wonder if self-employment is the only escape from corporate life that feels like a "Dilbert" cartoon, consider 23-year-old Steve Outtrim. The Australian management student wrote a Web page editor in five days while unemployed last year. So far, he's earned about $7.5 million from Hot Dog, which is sold as shareware with a $100 registration request from his Sausage Software page on the Web (www.sausage.com). And we thought the only way to make a small fortune from the Internet was to start out with a large fortune. ... Share your daydreams and nightmares with Computerworld *news editor Patricia Keefe at (508) 820-8183 or patricia_keefe@cw.com.*



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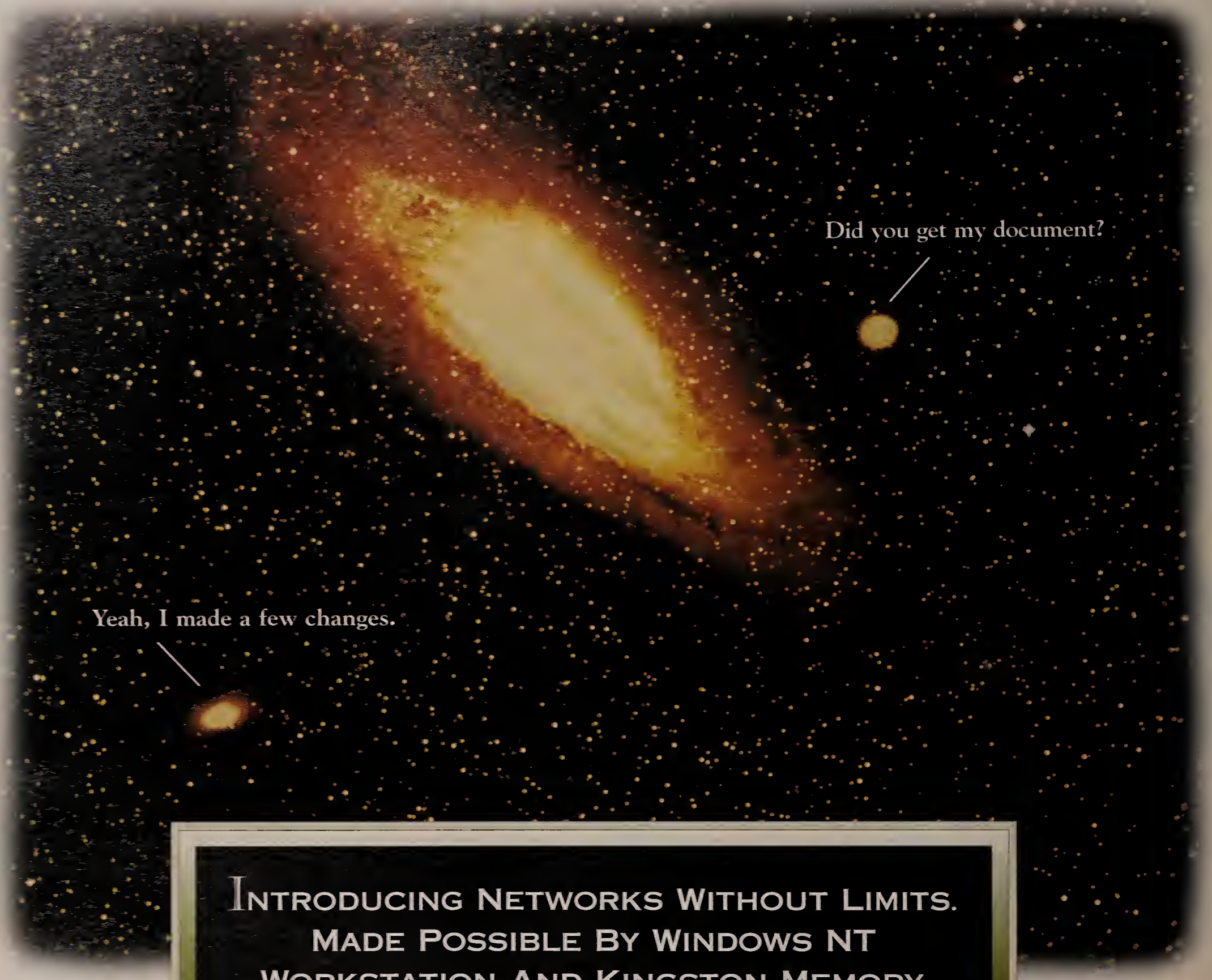
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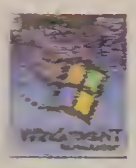
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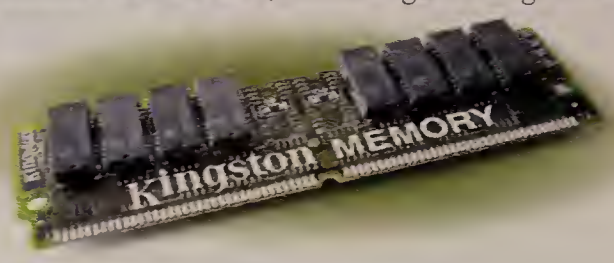
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